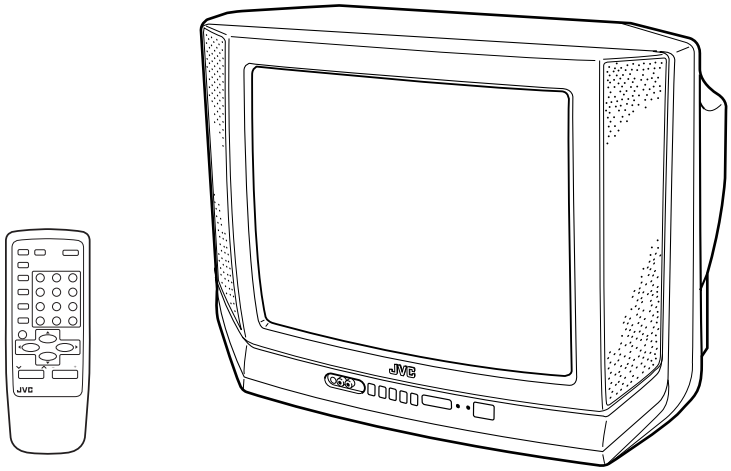
JVC

SERVICE MANUAL

COLOR TELEVISION

BASIC CHASSIS
GA2

AV-21F1P(PH)



CONTENTS

■ SPECIFICATIONS 2
■ SAFETY PRECAUTIONS 3
■ FEATURES 4
★ OPERATING INSTRUCTIONS (APPENDED) 1-1
■ SPECIFIC SERVICE INSTRUCTIONS 4
■ SERVICE ADJUSTMENTS 10
★ STANDARD CIRCUIT DIAGRAM (APPENDED) 2-1
■ PARTS LIST 27

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No. 56033
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SPECIFICATIONS

Item		Content
Dimensions (W × H × D)		619mm × 458mm × 486.5mm
Mass		22kg
TV RF System		CCIR (M) & (N)
Color System		NTSC / PAL-M / PAL-N
TV Receiving Channel and Frequency		
VHF (VL) Band		(02 ~ 06) 54MHz ~ 88MHz
VHF (VH) Band		(07 ~ 13) 174MHz ~ 216MHz
UHF Band		(14 ~ 69) 470MHz ~ 806MHz
CATV Receiving Channel and Frequency		
Low Band		(02 ~ 06) (54MHz ~ 804MHz)
High Band		(07 ~ 13)
Mid Band		(14 ~ 22)
Super Band		(23 ~ 36)
Hyper Band		(37 ~ 64)
Ultra Band		(65 ~ 94, 100 ~ 125)
Sub Mid Band		(01, 96 ~ 99)
TV/CATV Total Channel		180 Channels
Intermediate Frequency		
VIF Carrier		45.75MHz
SIF Carrier		41.25MHz (4.5MHz)
Color Sub Carrier Frequency		NTSC: 3.579545MHz PAL-M: 3.57561149MHz PAL-N: 3.58205625MHz
Aerial Input Terminal		75Ω Unbalanced
Power Input		Rating: AC110 ~ 240V, 50/60Hz Operating: AC90 ~ 260V, 50/60Hz
Power Consumption		66W
Picture Tube		Visible size : 51cm measured diagonally
High Voltage		26.5kV ± 1kV (at zero beam current)
Speaker		6cm × 12 cm Oval type × 2
Audio Output		2W (Monaural)
Input	Video	1Vp-p, 75Ω
	Audio	500mVrms (–4dBs), High impedance
Output	Video	1Vp-p, 75Ω
	Audio	500mVrms (–4dBs), Low impedance
Headphone Jack		Stereo mini jack (3.5ø)
Remote Control Unit		RM-C372-1H (Battery size : AA/R06/UM-3 × 2)

Design & specifications are subject to change without notice.

SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

4. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND. Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.

5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).

6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

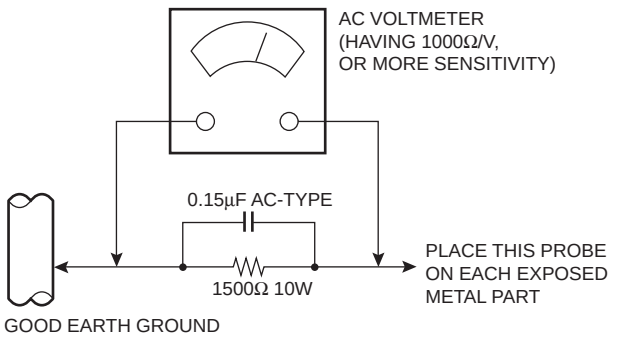
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

9. **Isolation Check**
   (Safety for Electrical Shock Hazard)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

   (1) **Dielectric Strength Test**
   The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.
   (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
   This method of test requires a test equipment not generally found in the service trade.

   (2) **Leakage Current Check**
   Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
   However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

   ● **Alternate Check Method**
   Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15µF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
   However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



FEATURES

- New chassis design enables use of an interactive on-screen control.
- Wide range voltage for AC power input.
- With AUDIO / VIDEO INPUT & OUTPUT terminals.
- MUTING button can reduce the audio level to zero instantly.
- Functional remote control to operate TV set (for channel select, volume control, power ON/OFF, etc.) from a distance.
- I^2C bus is used to control V/C & DEF 1 chip IC, tuner, etc.
- By means of AUTO PROGRAM, the TV stations can be selected automatically and the TV channels can also be rearranged automatically.
- Built-in RETURN +.
- Built-in RTC (real-time clock) enables ON/OFF timer settings.

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Unplug the AC power cord.
2. Remove the **6** screws marked "**A**" and **2** screws marked "**B**".
3. Withdraw the rear cover backward.

REMOVING THE MAIN PW BOARD

- After removing the rear cover.

1. Slightly raise both sides of the Main PW Board by hand and withdraw it backward.
   (If necessary, take off the wire clamp, connectors etc.)

REMOVING THE SPEAKER

- After removing the rear cover.

1. Remove the **2** screws marked "**C**".
2. Follow the same step for removing the other hand speaker.

CHECKING THE MAIN PW BOARD

To check the back side of the Main PW Board, follow the next steps.

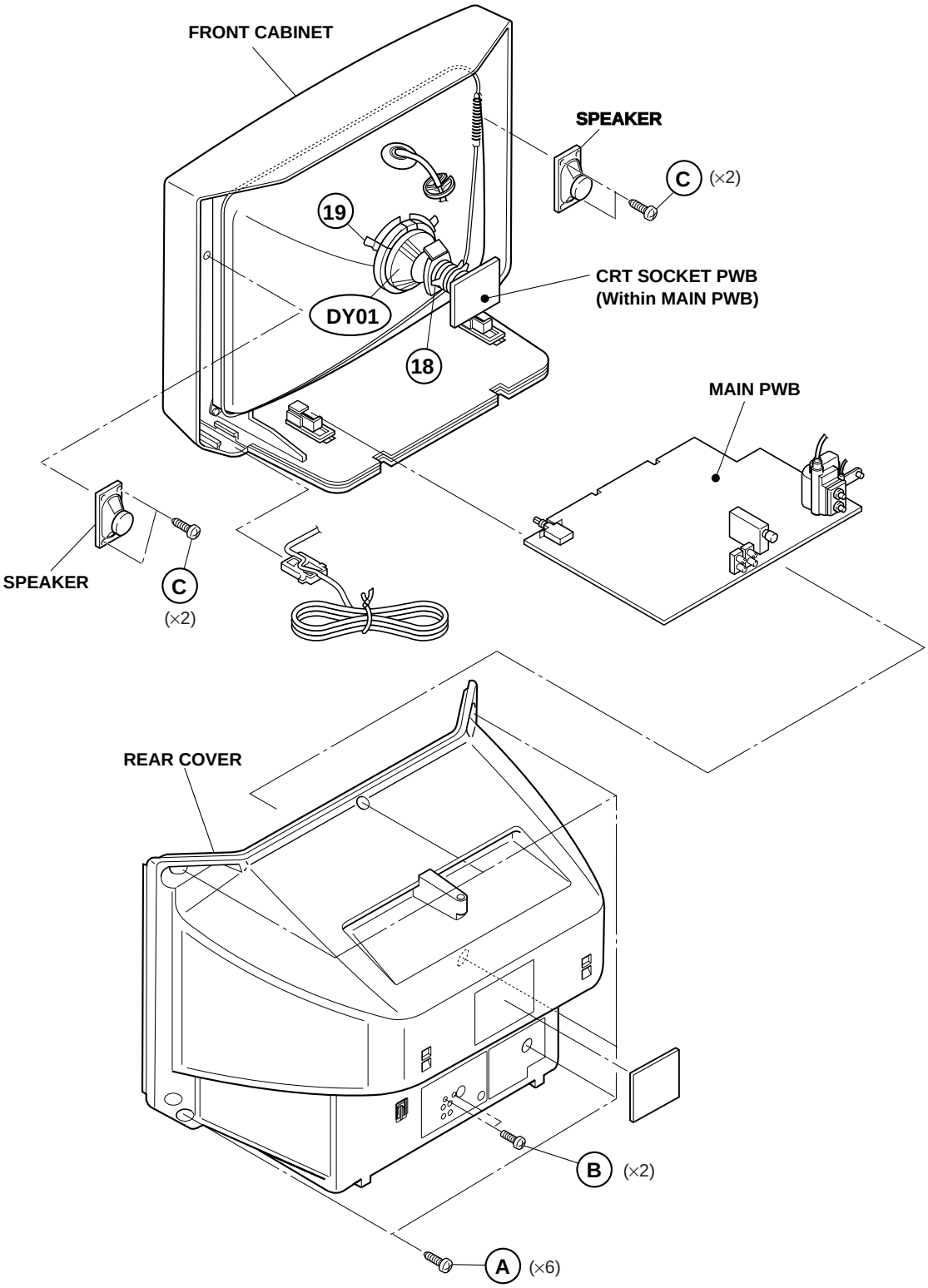
1. Pull out the Main PW Board. (Refer to "REMOVING THE MAIN PW BOARD".)
2. Erect the Main PW Board vertically so that you can easily check its back side.

CAUTION:

- When erecting the Main PW Board, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that all connectors are properly connected.

WIRE CLAMPING AND CABLE TYING

1. Be sure to clamp the wire.
2. Never remove the cable tie used for tying the wires together. Should it be inadvertently removed, be sure to tie the wires with a new cable tie.


FRONT CABINET
SPEAKER
C (×2)
19
DY01
18
CRT SOCKET PWB
(Within MAIN PWB)
MAIN PWB
SPEAKER
C
(×2)
REAR COVER
B (×2)
A (×6)

REPLACEMENT OF MEMORY IC

1. MEMORY IC

This TV uses the following memory IC.

Memory IC: IC1704 on MAIN PW Board

The memory IC memorizes data for correctly operating the video and deflection circuits. When replacing the memory IC, be sure to use the same type IC written with the initial values of data. In other words, use the specific IC listed in "PRINTED WIRING BOARD PARTS LIST". For its mounting location, refer to "ADJUSTMENT LOCATIONS".

2. PROCEDURE FOR REPLACING MEMORY IC

(1) Power off

Switch the power off and unplug the power cord from the wall outlet.

(2) Replacing the memory IC

Replace the memory IC with new one. Be sure to use the memory IC written with the initial data values.

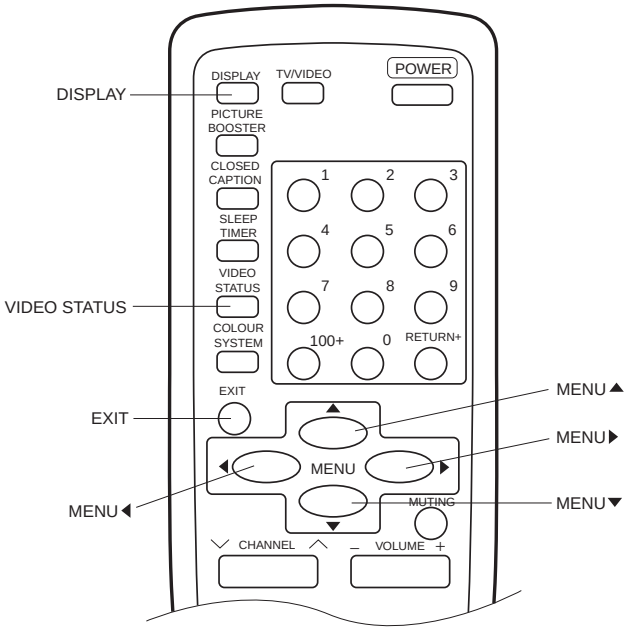
(3) Power on

Plug the power cord into the wall outlet and switch the power on.

(4) Check and setting of SYSTEM CONSTANT SET:

1) Press the DISPLAY key and the VIDEO STATU key on the remote control unit simultaneously.
   The SERVICE MENU screen will be displayed. (See Fig. 1.)
2) In the SERVICE MENU, again press the DISPLAY key and the VIDEO STATU key simultaneously. Then, the SYSTEM CONSTANT SET screen will be displayed. (See Fig. 2.)
3) Check whether the setting values of the SYSTEM CONSTANT SET are the same as those indicated in Table 1. If the value is different, select the setting item with the MENU ▲/▼ key, and set the correct value with the MENU ◀/▶ key.
   (The selected value will be stored in memory when the MENU ◀/▶ key is released.)
4) Press the EXIT key twice to return to the normal screen.

NAME OF REMOTE CONTROL KEYS



(5) Receive channel setting

Refer to the **OPERATING INSTRUCTIONS** and set the receive channels (channels preset).

(6) User settings

Check the user setting items in Tables 2-1 and 2-2, and if setting value is different, set the correct value.
For setting, refer to the **OPERATING INSTRUCTIONS**.

(7) Setting of SERVICE MENU

Verify the setting for each setting item in the SERVICE MENU. (See Table 3.) If readjustment is necessary, perform adjustment referring to "SERVICE ADJUSTMENTS".

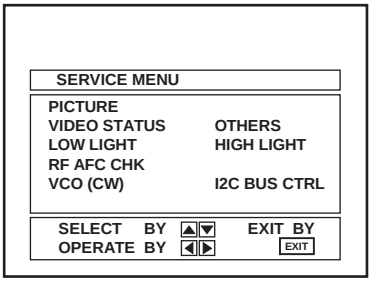


Fig. 1

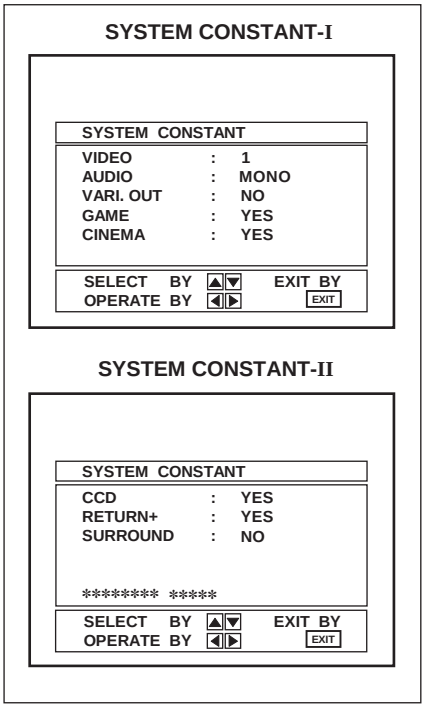


Fig. 2

SETTING OF SYSTEM CONSTANT SET

Table 1

Setting item	Setting contents	Setting value
VIDEO	↔ 1 ↔ 2	1
AUDIO	↔ MONO ↔ PH. MONO ↔ MTS	MONO
VARI. OUT	↔ YES ↔ NO	NO
GAME	↔ YES ↔ NO	YES
CINEMA	↔ YES ↔ NO	YES
CCD	↔ YES ↔ NO	YES
RETURN+	↔ YES ↔ NO	YES
SURROUND	↔ YES ↔ NO	NO

USER SETTING VALUES

● **Setting of Function**

Table 2-1

Setting item	Setting value	Setting item	Setting value
MAIN POWER	OFF	DISPLAY	OFF
SUB POWER	ON	SLEEP TIMER	0
CHANNEL	CH 02	VIDEO STATUS	STANDARD
CHANNEL PRESET	Refer to OPERATING INSTRUCTIONS	CLOSED CAPTION	OFF (CC1/T1)
VOLUME	10	COLOR SYSTEM	AUTO
TV/VIDEO	TV	PICTURE BOOSTER	OFF

● **Setting of Menu**

Table 2-2

Setting item	Setting value	Setting item	Setting value
TINT	CENTER	SET LOCK CODE	Unnecessary to set
COLOR	CENTER	CHILD LOCK	OFF
PICTURE	CENTER	AUTO TUNER SETUP	AIR
BRIGHT	CENTER	NOISE MUTING	OFF
DETAIL	CENTER	BACKGROUND	BLACK
SET CLOCK	Unnecessary to set	CLOSED CAPTION	CC1 / T1
ON/OFF TIMER	NO	LANGUAGE	ENG.
CHANNEL SUMMARY	Unnecessary to set		

SERVICE MENU SETTING ITEMS

Table 3

Service menu	Setting item	Service menu	Setting item
PICTURE	1. PICTURE 2. BRIGHT 3. COL. PALM 4. COL. PALN 5. COL. NTSC 6. TINT 7. TV DTL 8. EXT PIC. 9. EXT BRI. 10. EXT COL. 11. EXT TINT 12. EXT DTL 13. P/N KILL 14. Y S CONT 15. TV Y-DL 16. EXT Y-DL 17. WPL SW 18. Y GAMMA 19. P/N G P. 20. COL. L SW 21. COL. LMT. 22. PN C. ATT 23. OFST. SW 24. OFST. B-Y 25. OFST. R-Y 26. C-TOF SW 27. TV T FO 28. TV T Q 29. EXT T FO 30. EXT T Q 31. C-TRAP 32. C-TR. FO 33. C-TRAP Q 34. FIX B/W 35. APA P. FO 36. DC TRAN. 37. B. ST. SW 38. B. ST. PO. 39. ABL GAIN 40. ABL PO. 41. HALF T. 42. DRV G SW 43. NT. COMB 44. COIN DET 45. NOISE L. 46. VCD MODE 47. V AGC SP 48. H POS. 50 49. H BLK. 50 50. V POS. 50 51. V SIZE50 52. V S CR50 53. V LIN. 50 **Do not adjust.**		54. H POS. 60 55. H BLK. 60 56. V POS. 60 57. V SIZE60 58. V S CR60 59. V LIN. 60 60. RF AGC **Do not adjust.**
		VIDEO STATUS	TINT COLOR PICTURE BRIGHT DETAIL G DRIVE B DRIVE R CUT. G CUT. B CUT. **Do not adjust.**
		OTHERS	1. OSD HP 2. OSD VP 3. H-CK SW **Do not adjust.**
		LOW LIGHT	R CUTOFF G CUTOFF B CUTOFF
		HIGH LIGHT	G DRIVE B DRIVE
		RF AFC CHK	RF AFC FINE **Do not adjust.**
		VCO (CW)	IF VCO (CW) adjustment mode
		I²C BUS CTRL	I²C BUS (Fixed to ON state.)

REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

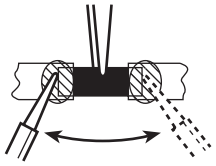
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30W soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

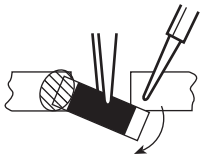
1. How to remove Chip parts

● **Resistors, capacitors, etc.**

(1) As shown in the figure, while pushing the chip part with tweezers, alternately melt the solder at its each end.



(2) Shift the chip part with tweezers and remove it.



● **Transistors, diodes, variable resistors, etc.**

(1) Apply extra solder to each lead.

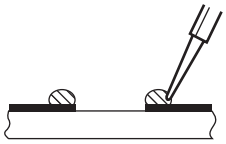
(2) As shown in the figure, while pushing the chip part with tweezers, alternately melt the solder at its each lead. Then, shift and remove the chip part.

Note : After removing the part, remove remaining solder from the pattern.

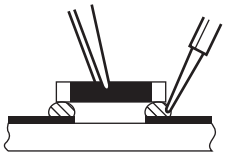
2. How to install Chip parts

● **Resistors, capacitors, etc.**

(1) Apply solder to the pattern as indicated in the figure.

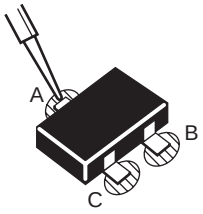


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

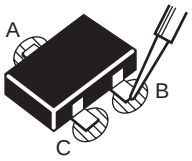


● **Transistors, diodes, variable resistors, etc.**

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SERVICE ADJUSTMENTS

BEFORE STARTING SERVICE ADJUSTMENT

1. **There are 2 ways for adjusting this TV: One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.**
2. **The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.**
3. Make sure that connection is correctly made to AC power source.
4. Turn on the power of the TV and measuring instrument for warming up for at least 30 minutes before starting adjustment.
5. If the receive or input signal is not specified, use the most appropriate signal for adjustment.
6. Never touch parts (such as variable resistors, transformers and capacitors) not shown in the adjustment items of this service adjustment.
7. Preparation for adjustment (presetting):
   Unless otherwise specified in the adjustment items, preset the following functions with the remote control unit.

Function	Setting value
VIDEO STATUS	STANDARD
TINT, COLOR, PICTURE, BRIGHT DETAIL	CENTER

MEASURING INSTRUMENT AND FIXTURES

1. DC voltmeter (or Digital voltmeter)
2. Oscilloscope
3. Signal generator (Pattern generator) [PAL / SECAM / NTSC]
4. Remote control unit
5. TV audio multiplex signal generator
6. Frequency counter

ADJUSTMENT/CHECK ITEMS

Adjustment/Check item	Page
B1 POWER SUPPLY Check	16
IF VCO Adjustment	16
RF AGC Adjustment	16
FOCUS Adjustment	16
DEFLECTION CIRCUIT Adjustment	17
VIDEO/CHROMA CIRCUIT Adjustment	18
VIDEO STATUS Adjustment	21
X-RAY PROTECTION Check	22
PURITY, CONVERGENCE Adjustment	23

BASIC OPERATION IN SERVICE MENU

1. **TOOL OF SERVICE MENU OPERATION**
   Operate the SERVICE MENU with the remote control unit.

2. **SERVICE MENU ITEMS**
   With the SERVICE MENU, various settings (adjustments) can be made, and they are broadly classified in the following items of settings:

- PICTURE ..... For entering/adjusting the setting values (adjustment values) of the VIDEO/CHROMA and DEFLECTION circuits.
- VIDEO STATUS ..... For setting the values for CINEMA and GAME.
- OTHERS ..... For setting the values of other items.
- LOW LIGHT ..... For setting the values of WHITE BALANCE circuit.
- HIGH LIGHT ..... For setting the values of WHITE BALANCE circuit .
- RF AFC CHK ..... For checking the RF AFC circuit. **(Do not adjust.)**
- VCO (CW) ..... For adjusting the IF circuit.
- I^2C BUS CTRL ..... I^2C BUS ON/OFF CONTROL. **(Fixed to ON.)**

3. BASIC OPERATION IN SERVICE MENU

NOTE: In each menu screen, key operation guide will appear at the bottom, which will help your menu operation.

(1) How to enter SERVICE MENU

Press the DISPLAY key and the VIDEO STATUS key on the remote control unit simultaneously.

The SERVICE MENU screen will be displayed. (See Fig. 1.)

- To return to the previous screen, press the EXIT key on the remote control unit.

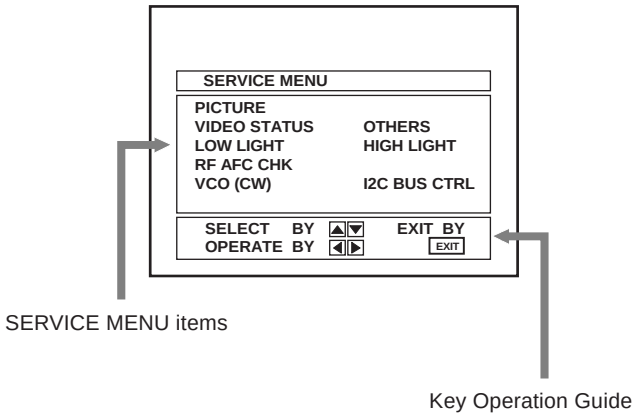
(2) Selection of Sub Menu Screen

See Fig. 3, menu diagram, on the next page.

1) Press the MENU ▲/▼ key on the remote control unit to select an item in the SERVICE MENU screen.
2) Enter the Sub Menu as follows:
   - **Entering "PICTURE" and "OTHERS" Sub Menus**
     Press the MENU ◄/► key in the SERVICE MENU screen. Then, the Screen A shown in Fig. 3 on the next page will appear.
     In the Screen A, press the MENU ▲/▼ key to enter the Sub Menu screen.
   - **Entering other than above Sub Menus**
     Press the MENU ◄/► key in the SERVICE MENU screen. Then, the Sub Menu screen will directly appear.

- To return to the previous screen, press the EXIT key on the remote control unit.

SERVICE MENU



▲/▼ key: Press to select an item.
◄/► key: Press to enter the SUB MENU screen of the selected item.
EXIT key: Press to return to the previous screen.

Fig. 1 SERVICE MENU

SERVICE MENU → SUB MENU		
	PICTURE	
	VIDEO STATUS	**OTHERS**
	LOW LIGHT	**HIGH LIGHT**
	RF AFC CHK	
	VCO (CW)	**I²C BUS CTRL**

(3) Method of Setting in the Sub Menu Screen

*Once the setting values are set, they are automatically memorized.

1) PICTURE, VIDEO STATUS, OTHERS

▲/▼ key: Press to select an item in the Sub Menu.
◄/► key: Press to select the value of the selected item.
EXIT key: Press to return to the previous screen.
VIDEO STATUS key: In the VIDEO STATUS sub menu screen, press to switch between VIDEO STATUS-GAME and VIDEO STATUS-CINEMA.

2) LOW LIGHT, HIGH LIGHT

Setting will be done by using the numeral key on the remote control unit.

3) RF AFC CHK

Do not adjust.

4) VCO (CW)

Setting will be done by adjusting the CW TRANSF. (T111) on the Main PWB.

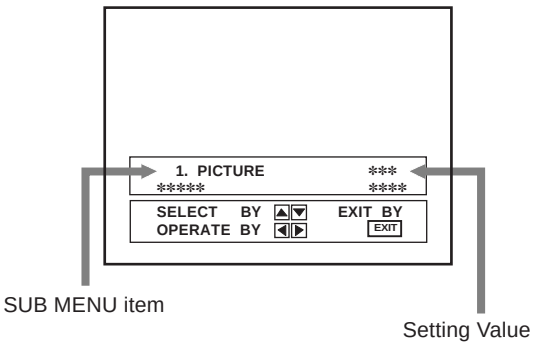
5) I2C BUS CTRL

Do not adjust. This item should always be fixed to ON to normally operate the TV set.

(4) Release of SERVICE MENU

After completing the setting, repeatedly press the EXIT key until the screen returns to the normal screen.

SUB MENU: PICTURE



▲/▼ key: Press to select an item.
◄/► key: Press to set the value.
EXIT key: Press to return to the previous screen.

Fig. 2 SUB MENU example (PICTURE)

Fig. 2

SERVICE MENU AND SUB MENU SCREENS

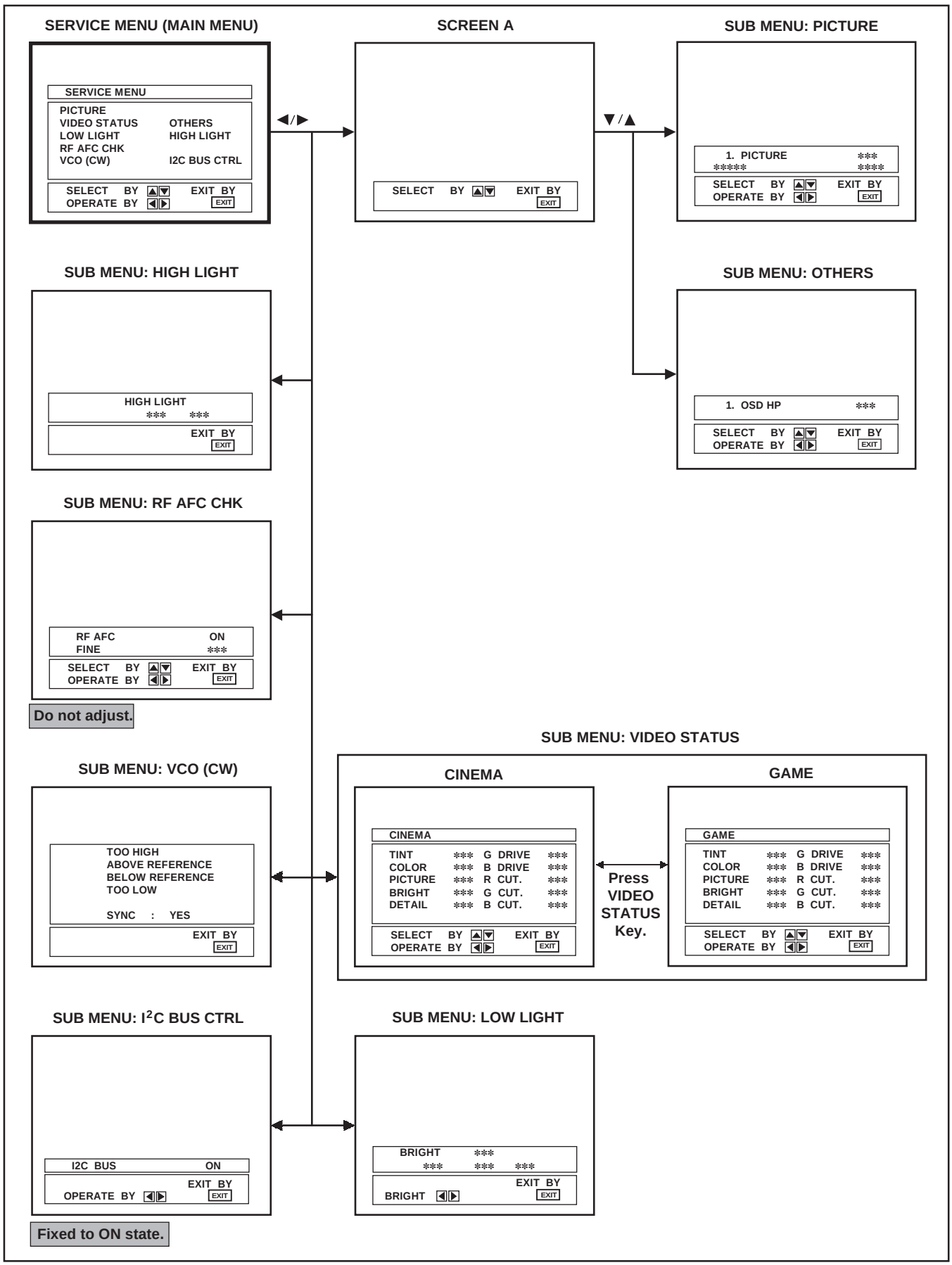
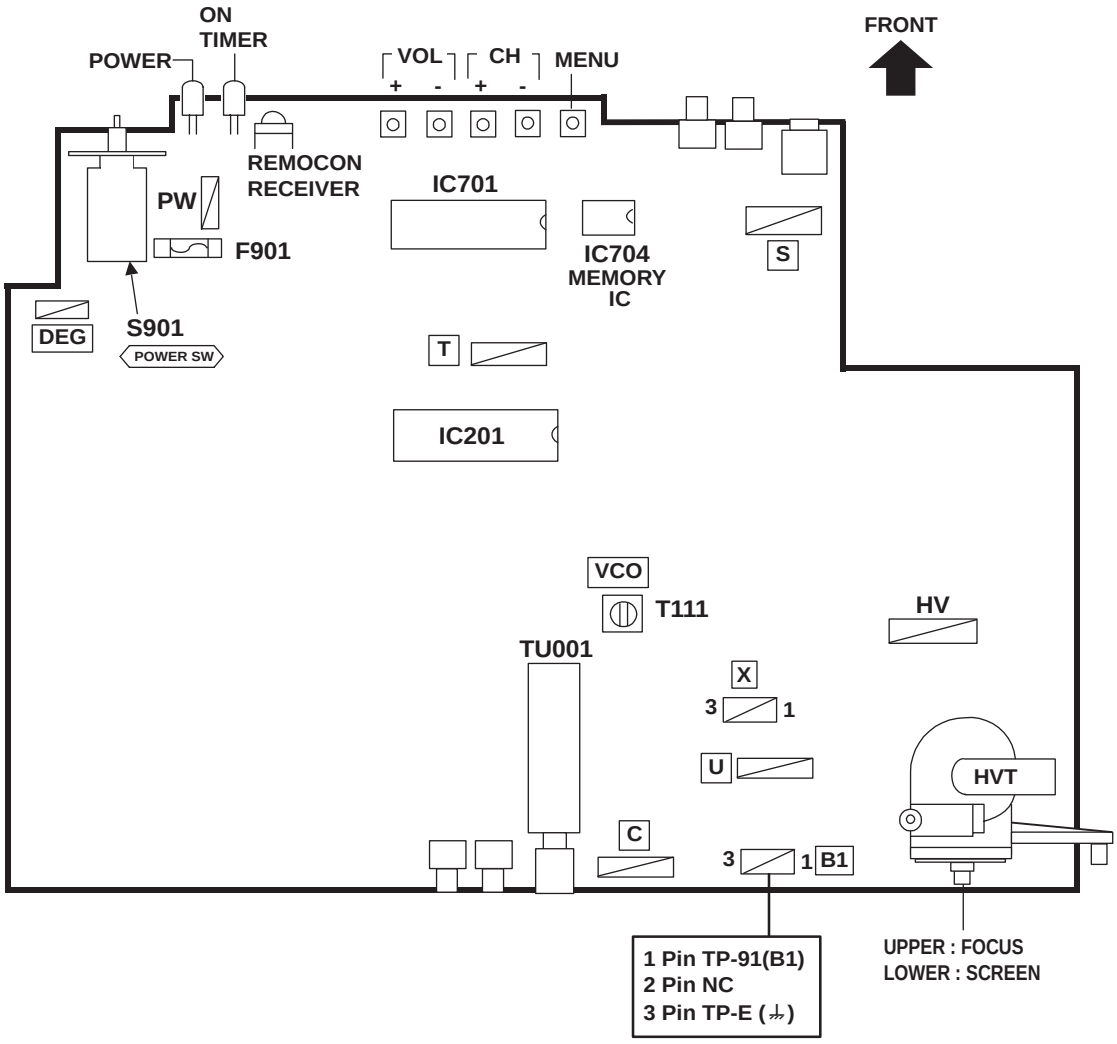


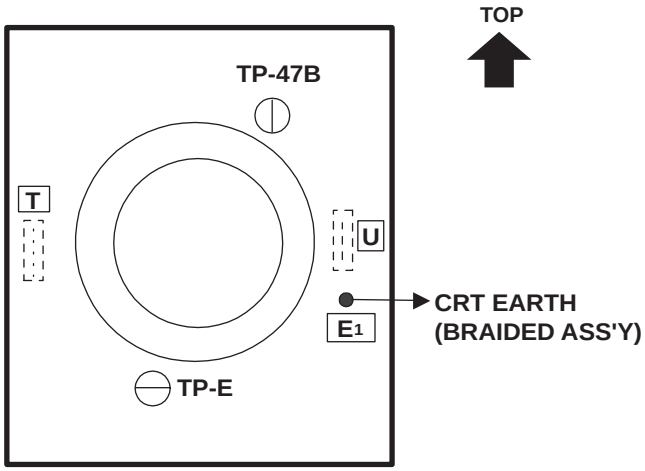
Fig. 3

ADJUSTMENT LOCATIONS

MAIN PWB



CRT SOCKET PWB
(SOLDER SIDE)



INITIAL SETTING VALUE OF SERVICE MENU

The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
● Do not change the initial setting values of the setting (adjustment) items not listed in "ADJUSTMENTS".

● PICTURE

★ The following four setting items in the video mode and TV mode are linked each other.
Video mode: 8. EXT PIC., 9. EXT BRI., 10. EXT COL. and 11. EXT TINT
TV mode: 1. PICTURE, 2 . BRIGHT, 5. COL. NTSC and 6. TINT
When the setting items in the TV mode are adjusted, the same values will be set to the linking items in the video mode. For example, if the value of 1. PICTURE is changed, the value of 8. EXT PIC. will also be changed accordingly. (The initial setting values given in ( ) are offset values against the TV mode.)

★ When the four items (Nos. 8, 9, 10 and 11) are adjusted in the video mode, the setting values will be changed independently from those in the TV mode.

Setting item	Variable range	Initial setting value
1. PICTURE	000 ~ 127	070
2. BRIGHT	000 ~ 127	064
3. COL. PALM	000 ~ 127	070
4. COL. PALN	000 ~ 127	070
5. COL. NTSC	000 ~ 127	072
6. TINT	000 ~ 127	065
7. TV DTL	000 ~ 063	033
8. EXT PIC.	±025	(±000)
9. EXT BRI.	±025	(+005)
10. EXT COL.	±025	(±000)
11. EXT TINT	±025	(+001)
12. EXT DTL	000 ~ 063	035
13. P/N KILL	000 / 001	001
14. Y S CONT	000 ~ 031	031
15. TV Y-DL	000 ~ 007	001
16. EXT Y-DL	000 ~ 007	002
17. WPL SW	000 / 001	000
18. Y GAMMA	000 / 001	000
19. P/N G P.	000 / 001	000
20. COL. L SW	000 / 001	001
21. COL. LMT.	000 ~ 003	001
22. PN C. ATT	000 ~ 003	001
23. OFST. SW	000 / 001	000
24. OFST. B-Y	000 ~ 015	008
25. OFST. R-Y	000 ~ 015	008
26. C-TOF SW	000 / 001	001
27. TV T FO	000 ~ 003	001
28. TV T Q	000 ~ 003	000
29. EXT T FO	000 ~ 003	000
30. EXT T Q	000 ~ 003	000

Settingitem	Variable range	Initial setting value
31. C-TRAP	000 / 001	000
32. C-TR. FO	000 ~ 003	002
33. C-TRAP Q	000 ~ 003	000
34. FIX B/W	000 / 001	000
35. APA P. FO	000 ~ 003	001
36. DC TRAN.	000 ~ 007	007
37. B. ST. SW	000 / 001	000
38. B. ST. PO.	000 ~ 007	000
39. ABL GAIN	000 ~ 007	004
40. ABL PO.	000 ~ 007	000
41. HALF T.	000 ~ 002	001
42. DRV G SW	000 / 001	000
43. NT. COMB	000 / 001	001
44. COIN DET	000 ~ 003	001
45. NOISE L.	000 ~ 003	003
46. VCD MODE	000 / 001	000
47. V AGC SP	000 / 001	000
48. H POS. 50	000 ~ 031	007
49. H BLK. 50	000 ~ 007	000
50. V POS. 50	000 ~ 007	000
51. V SIZE50	000 ~ 127	087
52. V S CR50	000 ~ 127	028
53. V LIN. 50	000 ~ 031	004
54. H POS. 60	000 ~ 031	012
55. H BLK. 60	000 ~ 007	000
56. V POS. 60	000 ~ 007	000
57. V SIZE60	000 ~ 127	088
58. V S CR60	000 ~ 127	048
59. V LIN. 60	000 ~ 031	004
60. RF AGC	000 ~ 255	160

: Do not adjust.

● VIDEO STATUS

Setting item	Variable range	Initial setting value	
		CINEMA	GAME
TINT	±20	±0	±0
COLOR	±20	–3	–3
PICTURE	±20	–10	–10
BRIGHT	±20	±0	±0
DETAIL	±15	±0	–5
G DRIVE	–99 ~ +50	–22	±0
B DRIVE	–99 ~ +50	–54	±0
R CUT.	±10	±0	±0
G CUT.	±10	±0	±0
B CUT.	±10	±0	±0

: Do not adjust.

● OTHERS

Setting item	Variable range	Initial setting value
1. OSD HP	000 ~ 063	023
2. OSD VP	000 ~ 015	012
3. H-CK SW	000 / 001	000

: Do not adjust.

● LOW LIGHT

Setting item	Variable range	Initial setting value
R CUTOFF	000 ~ 255	020
G CUTOFF	000 ~ 255	020
B CUTOFF	000 ~ 255	020

● HIGH LIGHT

Setting item	Variable range	Initial setting value
G DRIVE	000 ~ 255	128
B DRIVE	000 ~ 255	128

● RF AFC CHK

Setting item	Variable range	Initial setting value
RF AFC	ON / OFF	ON
FINE	–77 ~ +77	xx

: Do not adjust.

● I2C BUS CTRL

Setting item	Variable range	Initial setting value
I²C BUS	ON / OFF	ON (Fixed to ON)

: Do not adjust.

ADJUSTMENTS

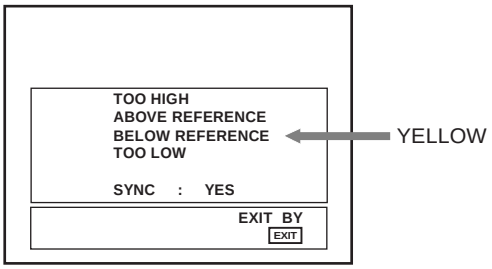
B1 POWER SUPPLY CHECK

Item	Measuring instrument	Test point	Adjustment part	Description
Check of B1 POWER SUPPLY	● **Signal Generator** ● **DC voltmeter**	**B1 (TP-91)** **TP-E (⏚)** **[B1 connector]**		1. Receive a black and white signal (color off). (NTSC) 2. Connect a DC voltmeter between B1 (TP-91) and TP-E (⏚) (between pins 1 and 3 of the connector B1). 3. Make sure that the voltage is **DC134.5 ± 2.0V**.

IF VCO ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment VCO (CW)	● **Signal Generator** ● **Remote control unit**		**CW TRANSF. (T111)** **[MAIN PWB]**	● **Under normal conditions, no adjustment is required.** 1. Receive any broadcast. (Use a channel without offset frequency.) 2. Select the sub menu screen **VCO (CW)** from the SERVICE MENU. (More specifically, in the SERVICE MENU, press the MENU ▲/▼ key to select VCO (CW) and then press the MENU ◄/► key to enter the sub menu screen VCO (CW) .) 3. Confirm that the color of "TOO HIGH" and "TOO LOW" changes in yellow as you turn the **CW TRANSF**. At this time, check that "SYNC: YES" appears on the screen. 4. Slowly turn the **CW TRANSF.** until "BELOW REFERENCE" changes to yellow. Also, at this time, check that "SYNC: YES" appears on the screen. 5. Press the **EXIT** key to return to the normal screen.

SUB MENU: VCO (CW)



RF AGC ADJUSTMENT

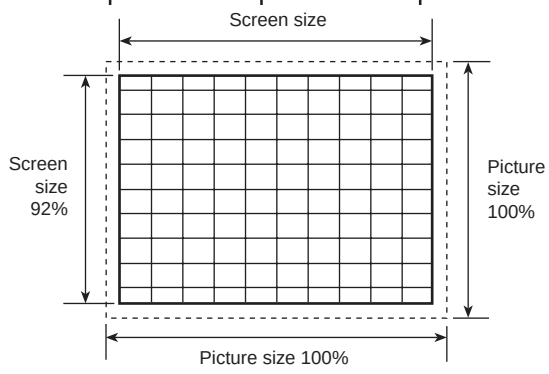
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of RF AGC	**Remote control unit**		**60. RF AGC**	1. Receive any broadcast. 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **60. RF AGC** with the MENU ▲/▼ key. 4. Press the MUTING key to turn off the color. 5. Press the MENU ◄ key to get noise on the screen picture. (The setting value will be decreased.) 6. Press the MENU ► key until noise disappears from the screen. 7. Change to other channels and make sure that there is no irregularity on the screen picture. 8. Press the MUTING key to turn on the color.

FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	**Signal generator**		**FOCUS VR** **[In HVT]**	1. Receive a cross-hatch signal. 2. While watching the screen, adjust the **FOCUS VR** to make the vertical and horizontal lines as fine and sharp as possible. 3. Make sure that, when the screen is darkened, the lines remain in good focus.

DEFLECTION CIRCUIT ADJUSTMENT

The setting (adjustment) using the remote control unit is made on the basis of the initial setting values shown on page 14.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- **Do not change the initial setting values of the setting (adjustment) items not listed herein.**

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of V. HEIGHT V. POSITION V. LIN. V. S CR	● **Signal generator** ● **Remote control unit**		**56. V POS. 60** **57. V SIZE60** **58. V S CR60** **59. V. LIN. 60**	**(60Hz)** 1. Receive a cross-hatch signal. (NTSC or PAL-M) 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **56. V POS. 60** with the MENU ▲/▼ key, and confirm that the setting value is 0. **NOTE:** The value of **56. V POS. 60** should be fixed to 0. 4. Confirm the initial setting value of **57. V SIZE60**, **58. V S CR60**, and 5**9. V. LIN. 60**. 5. Adjust **57. V SIZE60** and make the vertical screen size **92%** of the picture size, with the MENU ◀/▶ key. 6. Adjust **59. V. LIN. 60** and **58. V S CR60** to get the best vertical linearity, with the MENU ◀/▶ key.
			50. V POS. 50 **51. V SIZE50** **52. V S CR50** **53. V. LIN. 50** 	**(50Hz)** 1. Receive a cross-hatch signal. (PAL-N) 2. In the sub menu screen **PICTURE**, select **50. V POS. 50, 51. V SIZE50**, **52. V S CR50,** and **53. V. LIN. 50** with the MENU ▲/▼ key, and confirm their initial setting values. 3. Adjust **51. V SIZE 50** and make the vertical screen size **92%** of the picture size, with the MENU ◀/▶ key. 4. Adjust **53. V. LIN. 50** and **52.V S CR50** to get the best vertical linearity, with the MENU ◀/▶ key. 5. Adjust **50. V POS. 50** so that the vertical center line comes close to the CRT vertical center as much as possible, with the MENU ◀/▶ key. ● Readjust V SIZE, V. LIN, V S CR if necessary.
Adjustment of H. POSITION	● **Signal generator** ● **Remote control unit**		**54. H POS.60**	**(60Hz)** 1. Receive a cross-hatch signal. (NTSC or PAL-M) 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **54. H POS.60** with the MENU ▲/▼ key. 4. Confirm the initial setting value of **54. H POS.60**. 5. Adjust **54. H POS.60** so that the screen will be horizontally centered, with the MENU ◀/▶ key.
			48. H POS.50	**(50Hz)** 1. Receive a cross-hatch signal. (PAL-N) 2. In the sub menu screen **PICTURE**, select **48. H POS.50** with the MENU ▲/▼ key. 3. Confirm the initial setting value of **48. H POS.50**. 4. Adjust **48. H POS.50** so that the screen will be horizontally centered, with the MENU ◀/▶ key.

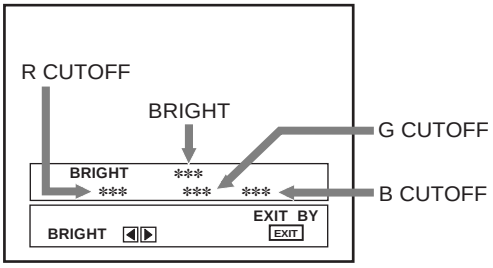
VIDEO/CHROMA CIRCUIT ADJUSTMENT

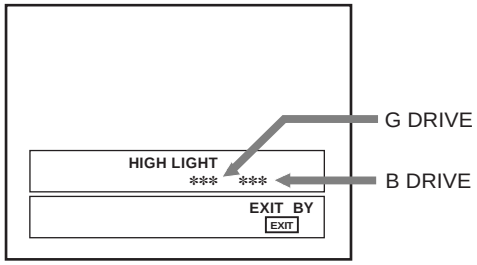
The setting (adjustment) using the remote control unit is made on the basis of the initial setting values shown on pages 14 and 15.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
● Do not change the initial setting values of the setting (adjustment) items not listed herein.

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>Adjustment of WHITE BALANCE (Low light)</td><td>● Signal generator
● Remote control unit</td><td></td><td>BRIGHT

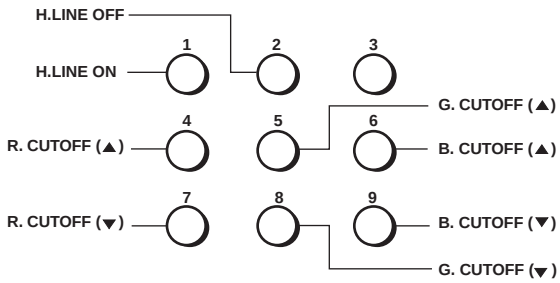
R CUTOFF
G CUTOFF
B CUTOFF

SCREEN VR
(In HVT)</td><td>1. Receive a black and white signal (color off).
2. Select the sub menu screen LOW LIGHT from the SERVICE MENU.
3. Confirm that the value of BRIGHT, R CUTOFF, G CUTOFF, and B CUTOFF is set to the initial setting value.
4. Press the 1 key on the remote control unit to produce a single horizontal line.
5. Turn the SCREEN VR fully counterclockwise, then slowly turn it clockwise to where a red, blue, or green color is faintly visible.
6. Use keys 4 ~ 9 on the remote control unit and adjust the other 2 colors to where the single horizontal line becomes white.
7. Turn the SCREEN VR to where the single horizontal line glows faintly.
8. Press the 2 key to stop producing a single horizontal line.
NOTE: The key 3 acts in the same way as the EXIT key.

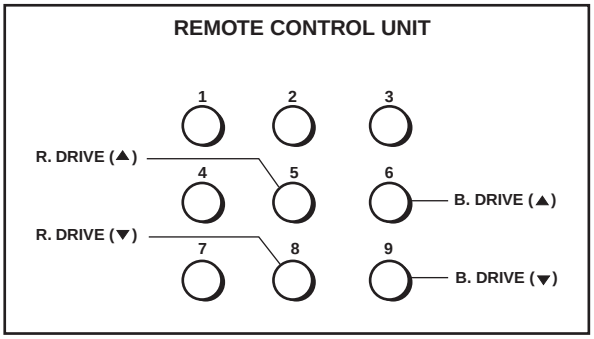
SUB MENU: LOW LIGHT
 
</td></tr>
<tr><td>Adjustment of WHITE BALANCE (High light)</td><td>● Signal generator
● Remote control unit</td><td></td><td>G DRIVE
B DRIVE</td><td>1. Receive a black and white signal (color off).
2. Select the sub menu screen HIGH LIGHT from the SERVICE MENU.
3. Confirm that the value of G DRIVE and B DRIVE is set to the initial setting value.
4. Use the keys 5 and 8 or 6 and 9 to produce a white screen.
NOTE: The key 3 acts in the same way as the EXIT key.

SUB MENU: HIGH LIGHT
 
</td></tr>
</table>

REMOTE CONTROL UNIT

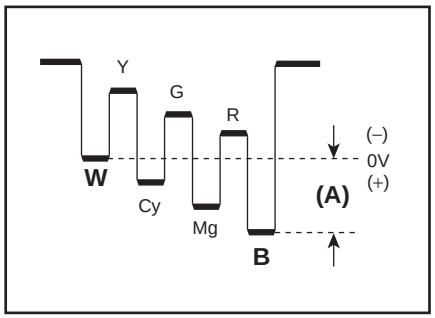


REMOTE CONTROL UNIT

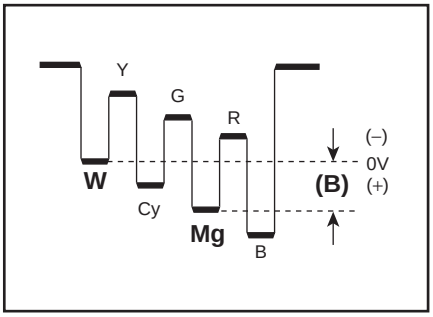


Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB BRIGHT	**Remote control unit**		**2. BRIGHT**	1. Receive any broadcast. 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **2. BRIGHT** with the MENU ▲/▼ key, and confirm its initial setting value. 4. If the brightness is not the best with the initial set value, make fine adjustment until you get the best brightness, with the MENU ◄/► key.
Adjustment of SUB CONT.	**Remote control unit**		**1. PICTURE**	1. Receive any broadcast. 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **1. PICTURE** with the MENU ▲/▼ key, and confirm its initial setting value. 4. If the contrast is not the best with the initial set value, make fine adjustment until you get the best contrast, with the MENU ◄/► key.
Adjustment of SUB COLOR -I	**Remote control unit**			**[Method of adjustment without measuring instrument]**
			3. COL. PALM	**(PAL-M COLOR)** 1. Receive a PAL-M broadcast. 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **3. COL. PALM** with the MENU ▲/▼ key, and confirm its initial setting value. 4. If the color is not the best with the initial set value, make fine adjustment until you get the best color, with the MENU ◄/► key.
			4. COL. PALN	**(PAL-N COLOR)** 1. Receive a PAL-N broadcast. 2. In the sub menu screen **PICTURE**, select **4. COL. PALN** with the MENU ▲/▼ key, and confirm its initial setting value. 3. If the color is not the best with the initial set value, make fine adjustment until you get the best color, with the MENU ◄/► key.
			5. COL. NTSC	**(NTSC COLOR)** 1. Receive a NTSC broadcast. 2. In the sub menu screen **PICTURE**, select **5. COL. NTSC** with the MENU ▲/▼ key, and confirm its initial setting value. 3. If the color is not the best with the initial set value, make fine adjustment until you get the best color, with the MENU ◄/► key.

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB COLOR-II	● **Signal generator** ● **Oscillo-scope** ● **Remote control unit**	**TP-47B TP-E (⏚) [CRT SOCKET PWB]**		**[Method of adjustment using measuring instrument]**
			3. COL. PALM	**(PAL-M COLOR)** 1. Receive a PAL-M full field color bar signal (75% white). 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **3. COL. PALM** with the MENU ▲/▼ key, and confirm its initial setting value. 4. Connect the oscilloscope between TP-47B and TP-E. 5. Adjust **3. COL. PALM** to set the value **(A)** in the figure to **+11V (W & B)**, with the MENU ◄/► key.
			4. COL. PALN	**(PAL-N COLOR)** 1. Receive a PAL-N full field color bar signal (75% white). 2. In the sub menu screen **PICTURE**, select **4. COL. PALN** with the MENU ▲/▼ key, and confirm its initial setting value. 3. Connect the oscilloscope between TP-47B and TP-E. 4. Adjust **4. COL. PALN** to set the value **(A)** in the figure to **+10V (W & B)**, with the MENU ◄/► key.
			5. COL. NTSC	**(NTSC COLOR)** 1. Receive a NTSC full field color bar signal (75% white). 2. In the sub menu screen **PICTURE**, select **5. COL. NTSC** with the MENU ▲/▼ key, and confirm its initial setting value. 3. Connect the oscilloscope between TP-47B and TP-E. 4. Adjust **5. COL. NTSC** to set the value **(A)** in the figure to **+10V (W & B)**, with the MENU ◄/► key.
Adjustment of SUB TINT-I	● **Signal Generator** ● **Remote control unit**		**6. TINT**	**[Method of adjustment without measuring instrument]** 1. Receive a NTSC color bar signal. 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **6. TINT** with the MENU ▲/▼ key, and confirm its initial setting value. 4. If the tint is not the best with the initial set value, make fine adjustment until you get the best tint, with the MENU ◄/► key.



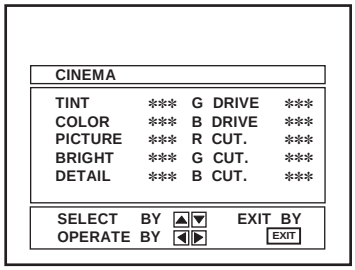
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB TINT-II	● **Signal generator** ● **Oscillo-scope** ● **Remote control unit**	**TP-47B TP-E (⏚) [CRT SOCKET PWB]**	**6. TINT**	**[Method of adjustment using measuring instrument]** 1. Receive a NTSC 3.58 color bar signal (full field color bar 75% white). 2. Select the sub menu screen **PICTURE** from the SERVICE MENU. 3. Select **6. TINT** with the MENU ▲/▼ key, and confirm its initial setting value. 4. Connect the oscilloscope between TP-47B and TP-E. 5. Adjust **6. TINT** to set the value **(B)** in the figure to **+14V (W & Mg)**, with the MENU ◄/► key.



VIDEO STATUS ADJUSTMENT

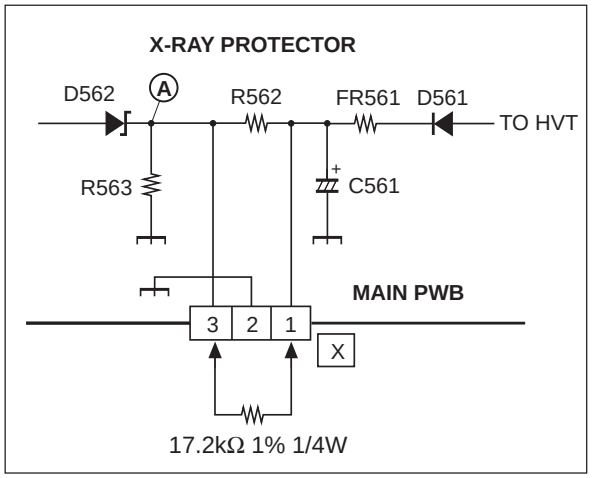
Item	Measuring instrument	Test point	Adjustment part	Description
Setting of VIDEO STATUS	**Remote control unit**		**TINT** **COLOR** **PICTURE** **BRIGHT** **DETAIL** **G DRIVE** **B DRIVE** **R CUT.** **G CUT.** **B CUT.**	**NOTE:** Do not adjust. Each value should be set to the initial value. 1. Select the sub menu screen **VIDEO STATUS-CINEMA** from the SERVICE MENU. 2. Select **TINT ~ B CUT.** with the MENU ▲/▼ key, and reset each value to the initial setting value on page 15, with the MENU ◄/► key. 3. Press the VIDEO STATUS key on the remote control unit to select **VIDEO STATUS-GAME**. (Each time you press the VIDEO STATUS key, **CINEMA** and **GAME** alternates.) 4. Make similar settings as in 2 above.

SUB MENU: VIDEO STATUS



■ X-RAY PROTECTION CHECK

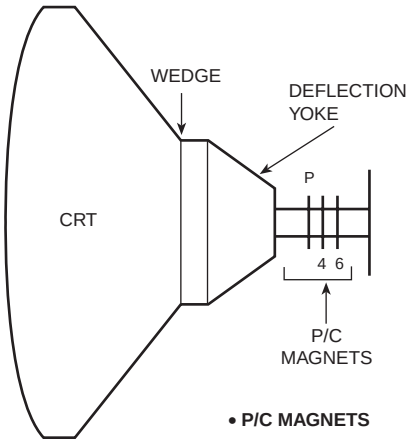
Item	Measuring instrument	Test point	Adjustment part	Description
Check of X-RAY PROTEC-TION		**Pins 1 and 3** **[X Connector on MAIN PWB]**		● **Prepare the following resistor.** **17.2kΩ ±1% 1/4W** 1. Turn on the power and receive any signal. 2. Connect the resistor between pins **1** and **3** of the **X** connector on the Main PW Board. 3. Make sure that the picture disappears. 4. Unplug the AC power cord. 5. Disconnect the resistor from the X connector. 6. Plug the AC power cord and make sure that the picture appears normally. **X-Ray Protector Operation:** Normally the voltage at point "A" does not exceed the Zener voltage of D562. (The voltage at point "A" will be determined by dividing the voltage from HVT (FBT) by R562 and R563.) When you connect a resistor of 17.2kΩ or less in parallel with R562, the voltage at point "A" is increased, D562 turns ON, and the X-ray protection circuit is activated. Once it is activated, you need to unplug the AC power cord to restore the X-ray protection circuit.



PURITY, CONVERGENCE ADJUSTMENT

PURITY ADJUSTMENT

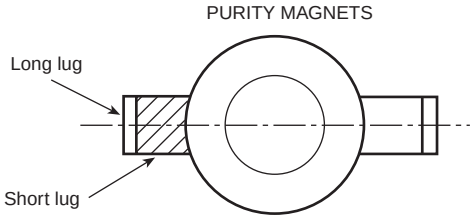
1. Demagnetize CRT with the demagnetizer.
2. Loosen the retainer screw of the deflection yoke.
3. Remove the wedges. (Fig. 1.)
4. Input a green raster signal from the signal generator, and turn the screen to green raster.
5. Move the deflection yoke backward.
6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig. 2)
7. Adjust the gap between two lugs so that the green raster will come into the center of the screen. (Fig. 3)
8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
9. Insert the wedge to the top side of the deflection yoke so that it will not move.
10. Input a cross-hatch signal.
11. Verify that the screen is horizontal.
12. Input red and blue raster signals, and make sure that purity is properly adjusted.



• P/C MAGNETS

P : PURITY MAGNET
4 : 4 POLES (convergence magnets)
6 : 6 POLES (convergence magnets)

Fig. 1



Bring the long lug over the short lug and position them horizontally.

Fig. 2

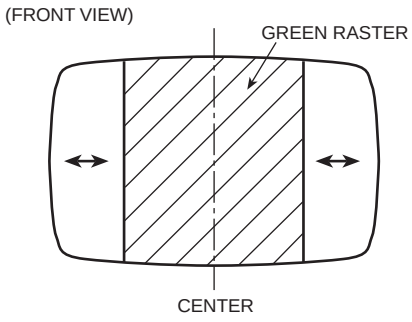


Fig. 3

STATIC CONVERGENCE ADJUSTMENT

1. Input a cross-hatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig. 1) to turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the center of the screen to turn them to white.
4. Repeat 2 and 3 above, and make best convergence.

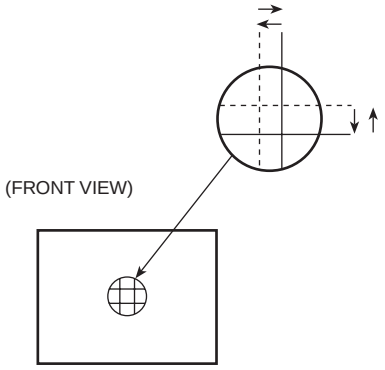


Fig. 1

DYNAMIC CONVERGENCE ADJUSTMENT

1. Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
3. Repeat 1 and 2 above, and make best convergence.

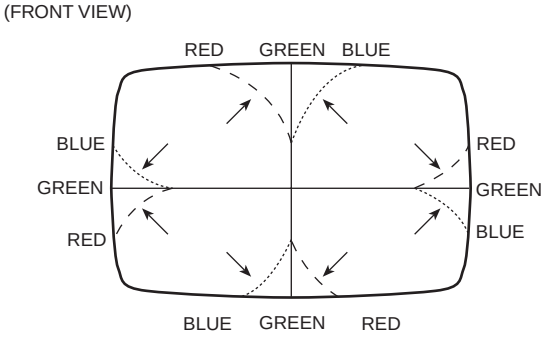


Fig. 2

- After adjustment, fix the wedge at the original position.
  Fasten the retainer screw of the deflection yoke.
  Fix the 6 magnets with glue.

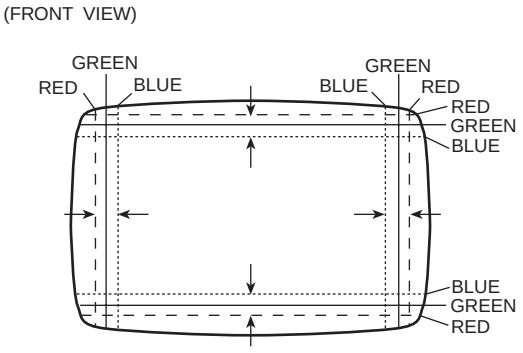


Fig. 3

SELF-CHECK FUNCTIONS

1. Outline

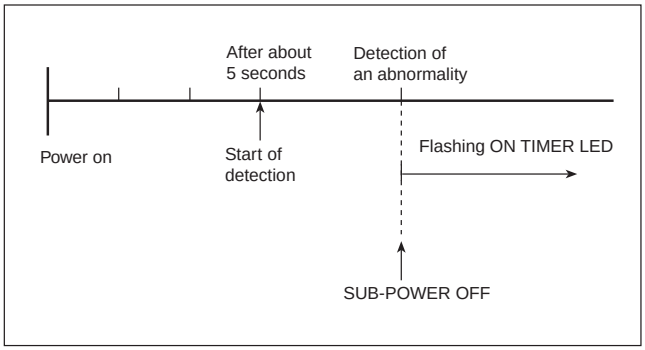
This model has self-check functions given below. When an abnormality has been detected, the SUB POWER is turned off and the ON TIMER LED flashes to inform of the failure. An abnormality is detected by the signal input state of the control line connected to the microcomputer.

2. Self-check items

Check item	Details of detection	Method of detection	State of abnormality
Over-current protection	An over-current on the low B line is detected. Also, an over-current for speaker drive is detected.	The microcomputer detects the possible abnormality at 1-sec. intervals. If NG state is detected for more than 1 ms, the microcomputer judges that there is an abnormality.	When an abnormality has been detected, the SUB-POWER is turned off. While the SUB-POWER is being turned off, the POWER key on the remote control unit is not operational until the power cord is taken out and put in again.
CRT NECK protection	Operation of CRT NECK protection circuit	DITTO	DITTO
X-ray protection	Operation of X-ray protection circuit.	DITTO	DITTO

3. Self-check indicating function

When an abnormality has been detected at about 5 seconds after the power is turned on, the SUB POWER is turned off immediately and the ON TIMER LED flashes.



[Indication by the LED]

Item	LED flashing intervals	Priority of detection
Over-current protection/X-ray protection	At 0.5-second intervals	1
CRT NECK protection	At 1-second intervals	2

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2. SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1) Input signal : Color bar signal
(2) Setting positions of each knob/button and variable resistor : Original setting position when shipped
(3) Internal resistance of tester : DC 20kΩ/V
(4) Oscilloscope sweeping time : H → 20μS/div
: V → 5mS/div
: Others → Sweeping time is specified.
(5) Voltage values : All DC voltage values

* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3. INDICATION OF PARTS SYMBOL [EXAMPLE]

● In the PW board : R1209 → R209

4. INDICATIONS ON THE CIRCUIT DIAGRAM

(1) Resistors

● Resistance value
No unit : [Ω]
K : [KΩ]
M : [MΩ]

● Rated allowable power
No indication : 1/4 [W]
Others : As specified

● Type
No indication : Carbon resistor
OMR : Oxide metal film resistor
MFR : Metal film resistor
MPR : Metal plate resistor
UNFR : Non-flammable resistor
FR : Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2) Capacitors

● Capacitance value
1 or higher : [pF]
less than 1 : [μF]

● Withstand voltage
No indication : DC50 [V]
AC indicated : AC withstand voltage [V]
Others : DC withstand voltage [V]

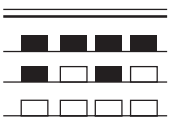
* Electrolytic Capacitors
47/50 [Example]: Capacitance value [μF]/withstand voltage [V]

● Type
No indication : Ceramic capacitor
MY : Mylar capacitor
MM : Metalized mylar capacitor
PP : Polypropylene capacitor
MPP : Metalized polypropylene capacitor
MF : Metalized film capacitor
TF : Thin film capacitor
BP : Bipolar electrolytic capacitor
TAN : Tantalum capacitor

(3) Coils

No unit : [μH]
Others : As specified

(4) Power Supply

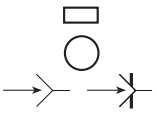

: B1
: 12V
: 9V
: 5V

* Respective voltage values are indicated.

(5) Test point

: Test point
: Only test point display

(6) Connecting method


: Connector
: Wrapping or soldering
: Receptacle

(7) Ground symbol

⊥ : LIVE side ground
⏚ : ISOLATED (NEUTRAL) side ground
⏚ : EARTH ground
▽ : DIGITAL ground

5. NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED (NEUTRAL) : (⏚) side GND. Therefore, care must be taken for the following points.

(1) Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED (NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
(2) Do not short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED (NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

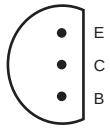
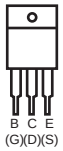
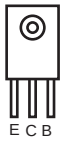
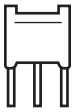
● **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

CONTENTS

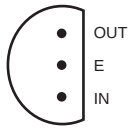
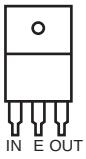
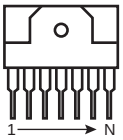
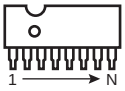
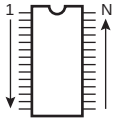
SEMICONDUCTOR SHAPES 2-4
BLOCK DIAGRAM 2-5
CIRCUIT DIAGRAMS
MAIN PWB CIRCUIT DIAGRAM (Including CRT SOCKET PWB) 2-7
PATTERN DIAGRAMS
MAIN PWB PATTERN 2-11
CRT SOCKET PWB PATTERN 2-13

SEMICONDUCTOR SHAPES

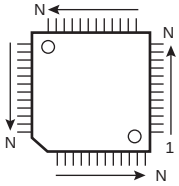
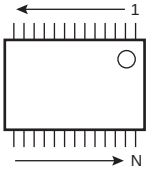
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR

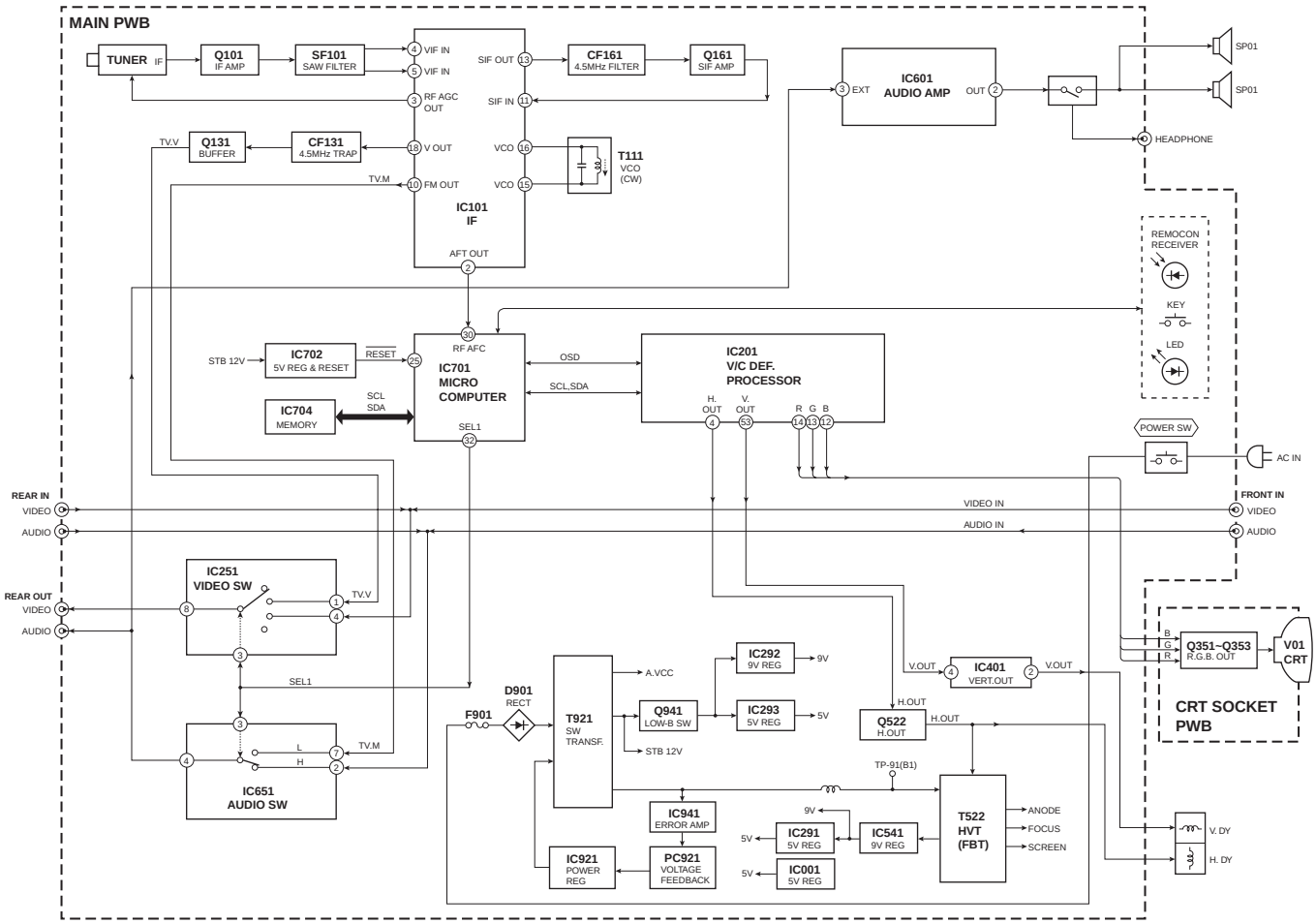
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

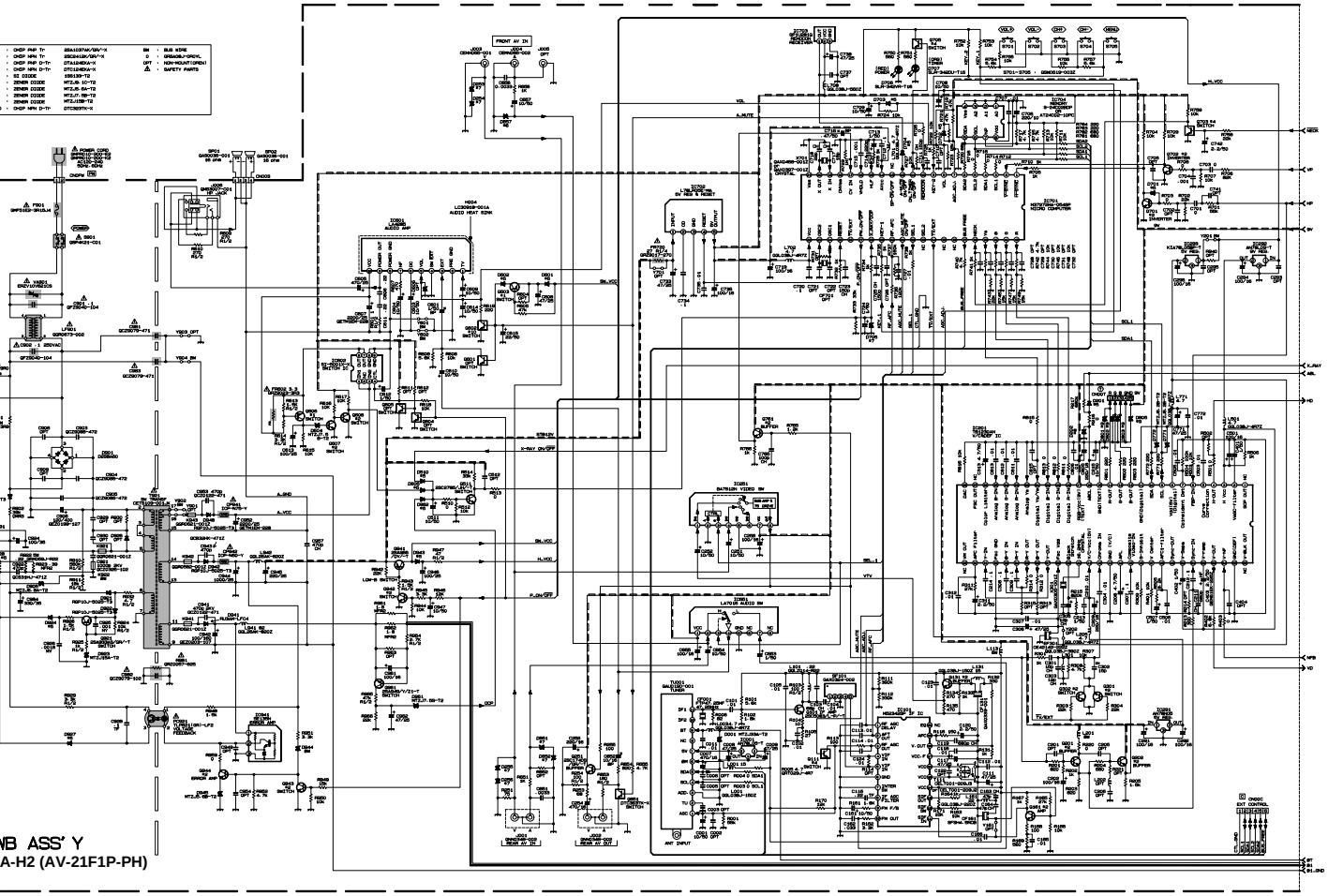
CHIP IC

TOP VIEW		
		

OCK DIAGRAM

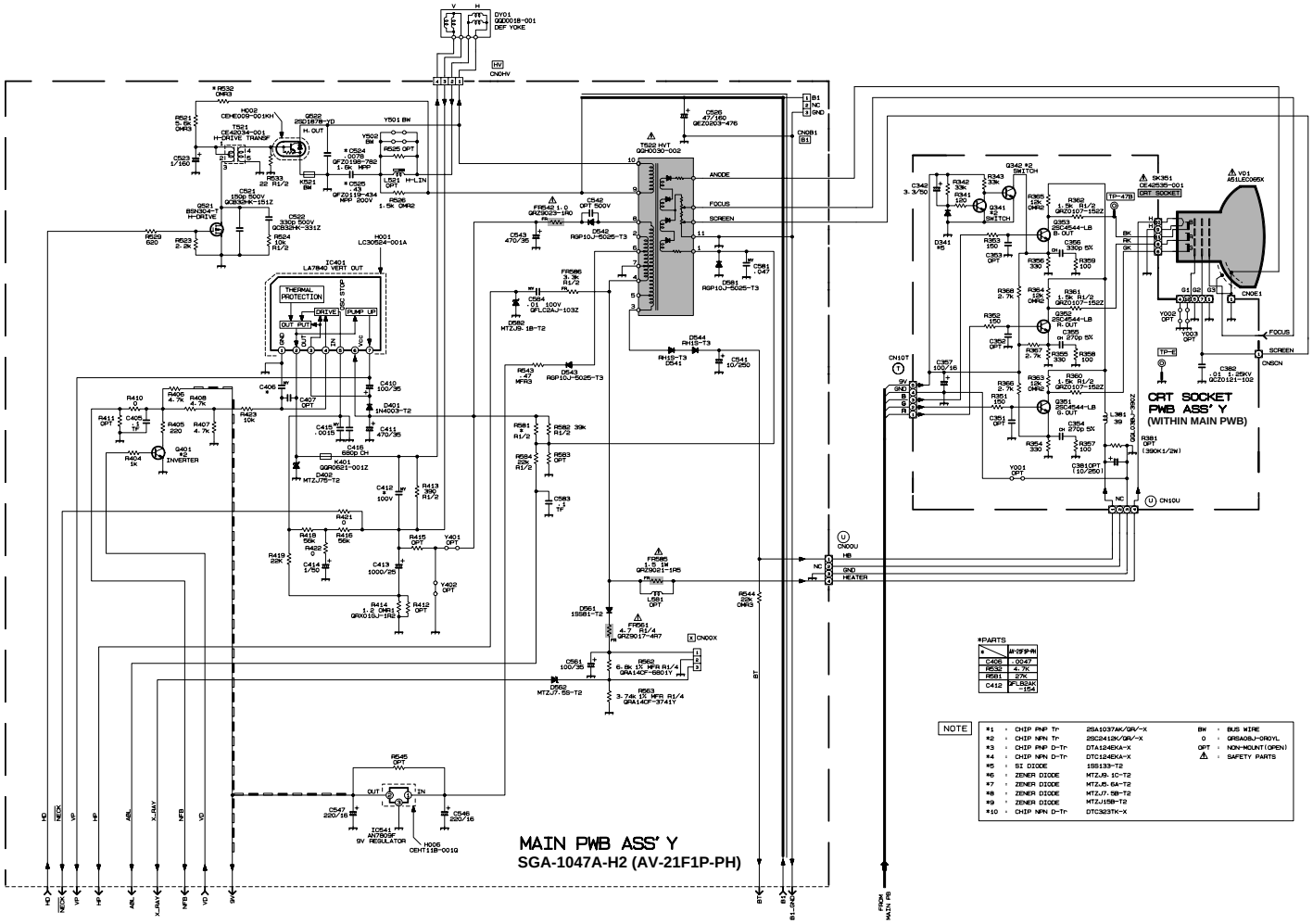

MAIN PWB
TUNER IF
Q101 IF AMP
SF101 SAW FILTER
VIF IN
VIF IN
RF AGC OUT
SIF OUT
CF161 4.5MHz FILTER
Q161 SIF AMP
SIF IN
IC601 AUDIO AMP
EXT
OUT
SP01
SP01
HEADPHONE
TV.V
Q131 BUFFER
CF131 4.5MHz TRAP
V OUT
VCO
VCO
T111 VCO (CW)
TV.M
FM OUT
IC101 IF
AFT OUT
REMOCON RECEIVER
KEY
LED
STB 12V
IC702 5V REG & RESET
RESET
RF AFC
IC701 MICRO COMPUTER
OSD
SCL,SDA
IC201 V/C DEF. PROCESSOR
H. OUT
V. OUT
R G B
IC704 MEMORY
SCL
SDA
SEL1
POWER SW
AC IN
REAR IN
VIDEO
AUDIO
VIDEO IN
AUDIO IN
FRONT IN
VIDEO
AUDIO
IC251 VIDEO SW
TV.V
REAR OUT
VIDEO
AUDIO
SEL1
D901 RECT
F901
T921 SW TRANSF.
A.VCC
IC292 9V REG
9V
Q941 LOW-B SW
IC293 5V REG
5V
STB 12V
V.OUT
IC401 VERT.OUT
V.OUT
H.OUT
Q522 H.OUT
H.OUT
B
G
R
Q351~Q353 R.G.B. OUT
V01 CRT
CRT SOCKET PWB
TP-91(B1)
L
H
TV.M
IC651 AUDIO SW
IC941 ERROR AMP
IC921 POWER REG
PC921 VOLTAGE FEEDBACK
9V
IC291 5V REG
IC541 9V REG
5V
IC001 5V REG
5V
T522 HVT (FBT)
ANODE
FOCUS
SCREEN
V. DY
H. DY

DIAGRAMS *MAIN PWB CIRCUIT DIAGRAM (1/2)*



NB ASS'Y
A-H2 (AV-21F1P-PH)

PWB CIRCUIT DIAGRAM (2/2)



PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety. Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines — in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
NETW R	Network Resistor	CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% –10%	+50% –10%	+80% –20%	+100% –0%

CONTENTS

■ P.W. BOARDS 28
■ EXPLODED VIEW PARTS LIST 28
■ EXPLODED VIEW 29
■ PRINTED WIRING BOARD PARTS LIST
● MAIN PW BOARD ASS'Y 30
■ PACKING / PACKING PARTS LIST 35
■ REMOTE CONTROL UNIT PARTS LIST 35

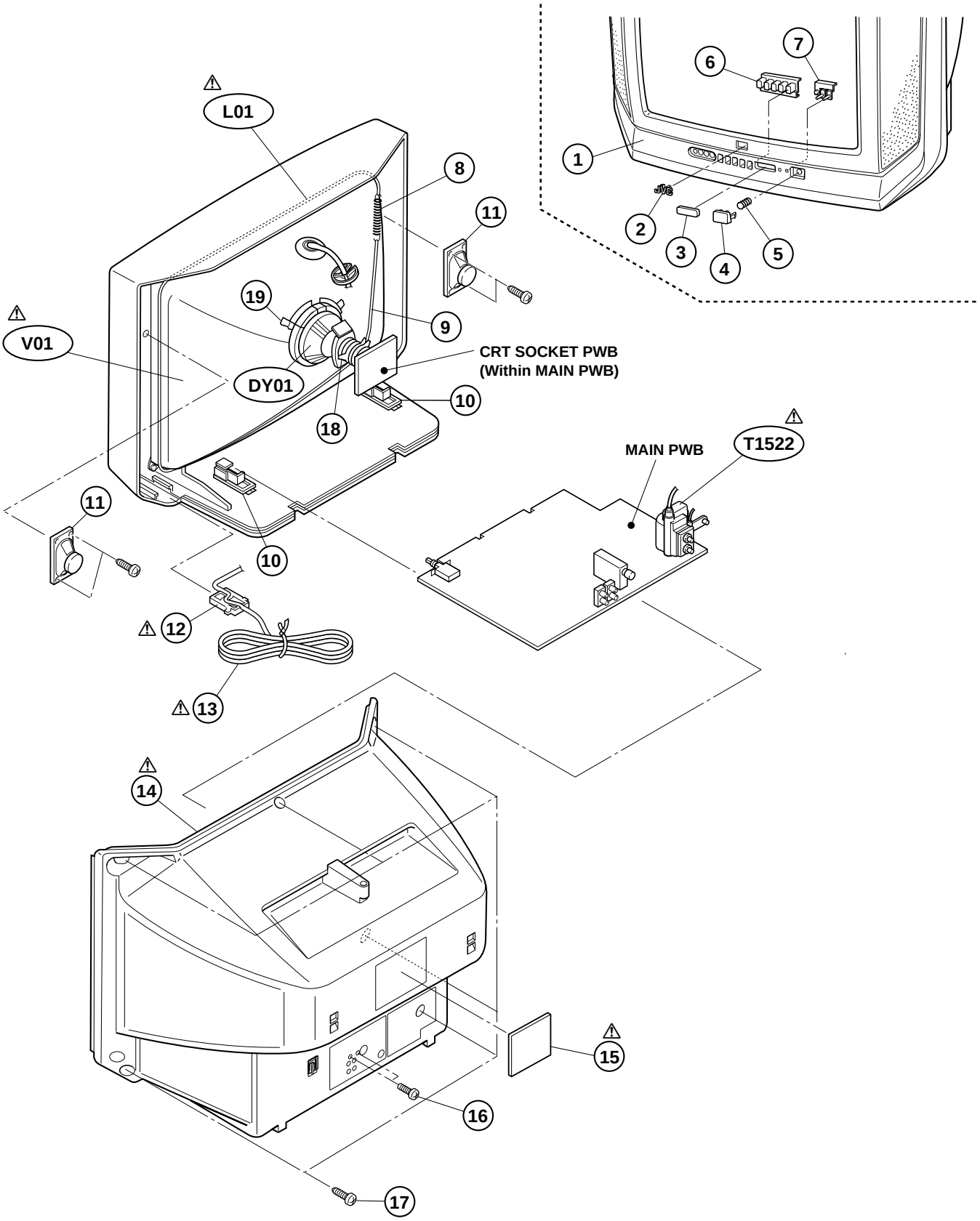
P.W. BOARDS

P.W.B. ASS'Y	PART NO.
MAIN P.W.B.	SGA-1047A-H2

EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
⚠	V01	A51LEC065X	PICTURE TUBE		
⚠	L01	QQW0006-001	DEG COIL		
	DY01	QQD0018-001	DEFLECTION YOKE		
⚠	T1522	QQH0030-002	H.V. TRANSF.		
	1	LC10394-031A-HK	FRONT CABINET		
	2	CM48006-007-C	JVC MARK		
	3	LC30617-001C-H	E.E. WINDOW		
	4	LC30616-004A-H	POWER KNOB		
	5	CM35235-006-H	SPRING		
	6	LC20292-004A-H	CONTROL KNOB		
	7	LC30618-001A-H	LED LENS		
	8	A48457-4-S	SPRING		
	9	CHGB0016-0B-GS	BRAIDED ASSY		
	10	CM36623-B01-H	CHASSIS RAIL	(x2)	
	11	QAS0036-001	SPEAKER	(x2) SP01	
⚠	12	CM47005-A01-H	CORD CLAMP		
⚠	13	QMPR010-200-E2	POWER CORD	or QMPR010-200-K2	
⚠	14	LC10448-003A-HK	REAR COVER		
⚠	15	GG20003-006A-H	RATING LABEL		
	16	QYSBSF3010Z	TAPPING SCREW	(x2)	
	17	QYSBSFG4016Z	TAPPING SCREW	(x6)	
	18	A75034-B	PC MAGNET		
	19	CE40764-00A	WEDGE ASSY	(x3)	

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN P.W. BOARD ASS'Y (SGA-1047A-H2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1001	NRSA02J-563X	CH MG R	56kΩ 1/10W	J
R1003	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1004	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1005	QRT029J-4R7	MF R	4.7Ω 2W	J
R1006	NRSA02J-820X	CH MG R	82Ω 1/10W	J
R1101	NRSA02J-562X	CH MG R	5.6kΩ 1/10W	J
R1102	NRSA02J-182X	CH MG R	1.8kΩ 1/10W	J
R1103	QRE121J-101Y	C R	100Ω 1/2W	J
R1104	NRSA02J-100X	CH MG R	10Ω 1/10W	J
R1105	NRSA02J-270X	CH MG R	27Ω 1/10W	J
R1111	NRSA02J-394X	CH MG R	390kΩ 1/10W	J
R1112	NRSA02J-334X	CH MG R	330kΩ 1/10W	J
R1113	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1116	NRSA02J-151X	CH MG R	150Ω 1/10W	J
R1131	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1132	NRSA02J-331X	CH MG R	330Ω 1/10W	J
R1133	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1134	NRSA02J-271X	CH MG R	270Ω 1/10W	J
R1135	NRSA02J-471X	CH MG R	470Ω 1/10W	J
R1161	NRSA02J-182X	CH MG R	1.8kΩ 1/10W	J
R1162	NRSA02J-332X	CH MG R	3.3kΩ 1/10W	J
R1163	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1164	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1165	NRSA02J-273X	CH MG R	27kΩ 1/10W	J
R1166	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1167	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1168	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1169	NRSA02J-561X	CH MG R	560Ω 1/10W	J
R1170	NRSA02J-123X	CH MG R	12kΩ 1/10W	J
R1171	NRSA02J-153X	CH MG R	15kΩ 1/10W	J
R1201	NRSA02J-821X	CH MG R	820Ω 1/10W	J
R1202	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1203	NRSA02J-821X	CH MG R	820Ω 1/10W	J
R1204	NRSA02J-681X	CH MG R	680Ω 1/10W	J
R1205	NRSA02J-152X	CH MG R	1.5kΩ 1/10W	J
R1213	NRSA02J-391X	CH MG R	390Ω 1/10W	J
R1215	NRSA02J-824X	CH MG R	820kΩ 1/10W	J
R1216	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1217	NRSA02J-684X	CH MG R	680kΩ 1/10W	J
R1220	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1251	NRSA02J-750X	CH MG R	75Ω 1/10W	J
R1253	NRSA02J-680X	CH MG R	68Ω 1/10W	J
R1254	QRE121J-101Y	C R	100Ω 1/2W	J
R1255	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1301	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1303	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
R1304	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
R1307	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1308	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
R1309	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1311	NRSA02J-273X	CH MG R	27kΩ 1/10W	J
R1312	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1314	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1341	NRSA02J-121X	CH MG R	120Ω 1/10W	J
R1342	NRSA02J-333X	CH MG R	33kΩ 1/10W	J
R1343	NRSA02J-333X	CH MG R	33kΩ 1/10W	J
R1351	NRSA02J-151X	CH MG R	150Ω 1/10W	J
R1352	NRSA02J-151X	CH MG R	150Ω 1/10W	J
R1353	NRSA02J-151X	CH MG R	150Ω 1/10W	J
R1354	NRSA02J-331X	CH MG R	330Ω 1/10W	J
R1355	NRSA02J-331X	CH MG R	330Ω 1/10W	J
R1356	NRSA02J-331X	CH MG R	330Ω 1/10W	J
R1357	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1358	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1359	NRSA02J-101X	CH MG R	100Ω 1/10W	J
R1360	QRZ0107-152Z	C R	1.5kΩ 1/2W	K
R1361	QRZ0107-152Z	C R	1.5kΩ 1/2W	K
R1362	QRZ0107-152Z	C R	1.5kΩ 1/2W	K
R1363	QRL029J-123	OM R	12kΩ 2W	J
R1364	QRL029J-123	OM R	12kΩ 2W	J
R1365	QRL029J-123	OM R	12kΩ 2W	J
R1366	NRSA02J-272X	CH MG R	2.7kΩ 1/10W	J
R1367	NRSA02J-272X	CH MG R	2.7kΩ 1/10W	J

⚠ Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1368	NRSA02J-272X	CH MG R	2.7kΩ 1/10W	J
R1401	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1402	NRSA02J-682X	CH MG R	6.8kΩ 1/10W	J
R1403	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1404	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1405	NRSA02J-221X	CH MG R	220Ω 1/10W	J
R1406	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
R1407	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
R1408	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
R1410	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1413	QRE121J-391Y	C R	390Ω 1/2W	J
R1414	QRX01GJ-1R2	MF R	1.2Ω 1W	J
R1416	NRSA02J-563X	CH MG R	56kΩ 1/10W	J
R1418	NRSA02J-563X	CH MG R	56kΩ 1/10W	J
R1419	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
R1421	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1422	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1423	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1501	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1503	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1504	NRSA02J-104X	CH MG R	100kΩ 1/10W	J
R1505	NRSA02J-822X	CH MG R	8.2kΩ 1/10W	J
R1506	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1510	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1512	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1513	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1514	NRSA02J-333X	CH MG R	33kΩ 1/10W	J
R1521	QRL039J-562	OM R	5.6kΩ 3W	J
R1523	NRSA02J-222X	CH MG R	2.2kΩ 1/10W	J
R1524	QRE121J-103Y	C R	10kΩ 1/2W	J
R1526	QRL029J-152	OM R	1.5kΩ 2W	J
R1529	NRSA02J-621X	CH MG R	620Ω 1/10W	J
R1532	QRL039J-472	OM R	4.7kΩ 3W	J
R1533	QRE121J-220Y	C R	22Ω 1/2W	J
R1543	QRT039J-R47	MF R	0.47Ω 3W	J
R1544	QRL039J-223	OM R	22kΩ 3W	J
R1562	QRA14CF-6801Y	MF R	6.8kΩ 1/4W	F
R1563	QRA14CF-3741Y	MF R	3.74kΩ 1/4W	F
R1581	QRE121J-273Y	C R	27kΩ 1/2W	J
R1582	QRE121J-393Y	C R	39KΩ 1/2W	J
R1584	QRE121J-223Y	C R	22kΩ 1/2W	J
R1601	QRE121J-1R0Y	C R	1.0kΩ 1/2W	J
R1605	NRSA02J-473X	CH MG R	47kΩ 1/10W	J
R1606	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1607	NRSA02J-471X	CH MG R	470Ω 1/10W	J
R1608	NRSA02J-562X	CH MG R	5.6kΩ 1/10W	J
R1609	QRE121J-271Y	C R	270Ω 1/2W	J
R1610	QRE121J-271Y	C R	270Ω 1/2W	J
R1613	QRE121J-152Y	C R	1.5kΩ 1/2W	J
R1614	QRE121J-332Y	C R	3.3kΩ 1/2W	J
R1615	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1616	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1617	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1618	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1619	NRSA02J-221X	CH MG R	220Ω 1/10W	J
R1651	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1653	QRE121J-181Y	C R	180Ω 1/2W	J
R1654	NRSA02J-821X	CH MG R	820Ω 1/10W	J
R1655	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
R1656	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1701	NRSA02J-563X	CH MG R	56kΩ 1/10W	J
R1702	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
R1703	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1704	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1705	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1706	NRSA02J-823X	CH MG R	82kΩ 1/10W	J
R1707	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1708	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1709	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1710	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
R1711	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
R1712	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
R1713	NRSA02J-103X	CH MG R	10kΩ 1/10W	J

⚠	Symbol No.	Part No.	Part Name	Description	Local
	RESISTOR				
	R1714	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1715	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
	R1716	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1717	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
	R1718	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1719	NRSA02J-473X	CH MG R	47kΩ 1/10W	J
	R1720	NRSA02J-683X	CH MG R	68kΩ 1/10W	J
	R1721	NRSA02J-473X	CH MG R	47kΩ 1/10W	J
	R1722	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1723	NRSA02J-183X	CH MG R	18kΩ 1/10W	J
	R1724	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1725	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1726	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1727	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1728	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1729	NRSA02J-105X	CH MG R	1MΩ 1/10W	J
	R1732	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1733	NRSA02J-333X	CH MG R	33kΩ 1/10W	J
	R1734	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1735	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1736	NRSA02J-124X	CH MG R	120kΩ 1/10W	J
	R1737	NRSA02J-184X	CH MG R	180kΩ 1/10W	J
	R1738	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1740	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
	R1741	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1742	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
	R1743	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
	R1744	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1745	NRSA02J-153X	CH MG R	15kΩ 1/10W	J
	R1746	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1747	NRSA02J-153X	CH MG R	15kΩ 1/10W	J
	R1748	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1749	NRSA02J-153X	CH MG R	15kΩ 1/10W	J
	R1750	NRSA02J-561X	CH MG R	560Ω 1/10W	J
	R1751	NRSA02J-561X	CH MG R	560Ω 1/10W	J
	R1752	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1753	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1754	NRSA02J-562X	CH MG R	5.6kΩ 1/10W	J
	R1755	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1756	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1757	NRSA02J-562X	CH MG R	5.6kΩ 1/10W	J
	R1758	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
	R1759	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1765	NRSA02J-122X	CH MG R	1.2kΩ 1/10W	J
	R1766	NRSA02J-102X	CH MG R	1kΩ 1/10W	J
	R1771	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1772	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1781	NRSA02J-681X	CH MG R	680Ω 1/10W	J
	R1782	NRSA02J-681X	CH MG R	680Ω 1/10W	J
	R1783	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1784	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1801	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1802	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1803	NRSA02J-221X	CH MG R	220Ω 1/10W	J
	R1811	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1812	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1813	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1815	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1816	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1901	QRF104K-3R9	UNF R	3.9Ω 10W	K
	R1902	QRL039J-393	OM R	39kΩ 3W	J
	R1910	QRE121J-564Y	C R	560KΩ 1/2W	J
	R1911	QRE121J-183Y	C R	18kΩ 1/2W	J
	R1921	QRE121J-681Y	C R	680Ω 1/2W	J
	R1922	QRM059J-R22	MP R	0.22Ω 5W	J
	R1923	QRT029J-R39	MF R	039Ω 2W	J
	R1924	QRE121J-103Y	C R	10kΩ 1/2W	J
	R1925	QRE121J-102Y	C R	1kΩ 1/2W	J
	R1926	QRE121J-152Y	C R	1.5kΩ 1/2W	J
	R1929	QRE121J-332Y	C R	3.3kΩ 1/2W	J
	R1932	QRE121J-4R7Y	C R	4.7Ω 1/2W	J
	R1942	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
	R1943	QRE121J-152Y	C R	1.5kΩ 1/2W	J
	R1944	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1945	NRSA02J-332X	CH MG R	3.3kΩ 1/10W	J

⚠	Symbol No.	Part No.	Part Name	Description	Local
	RESISTOR				
	R1946	NRSA02J-123X	CH MG R	12kΩ 1/10W	J
	R1947	QRE121J-470Y	C R	47Ω 1/2W	J
	R1948	NRSA02J-152X	CH MG R	1.5kΩ 1/10W	J
	R1949	NRSA02J-153X	CH MG R	15kΩ 1/10W	J
	R1950	NRSA02J-103X	CH MG R	10kΩ 1/10W	J
	R1951	NRSA02J-332X	CH MG R	3.3kΩ 1/10W	J
	R1952	NRSA02J-472X	CH MG R	4.7kΩ 1/10W	J
	R1959	NRSA02J-0R0X	CH MG R	0.0Ω 1/10W	J
	R1961	QRT029J-1R8	MF R	1.8Ω 2W	J
	R1962	QRT029J-1R8	MF R	1.8Ω 2W	J
	R1964	QRE121J-272Y	C R	2.7kΩ 1/2W	J
	R1965	QRE121J-473Y	C R	47kΩ 1/2W	J
	R1966	NRSA02J-223X	CH MG R	22kΩ 1/10W	J
⚠	R1981	QRZ0057-825	C R	8.2MΩ 1W	J
	CAPACITOR				
	C1001	QETN1HM-106Z	E CAP.	10µF 50V	M
	C1007	QETN1CM-477Z	E CAP.	470µF 16V	M
	C1008	QETN1EM-476Z	E CAP.	47µF 25V	M
	C1009	QETN1EM-476Z	E CAP.	47µF 25V	M
	C1011	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1101	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1102	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1103	NDC21HJ-680X	CH C CAP.	68pF 50V	J
	C1104	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1105	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1111	QETN1EM-476Z	E CAP.	47µF 25V	M
	C1112	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1113	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1114	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1116	QFV71HJ-224Z	TF CAP.	0.22µF 50V	J
	C1117	QETN1EM-476Z	E CAP.	47µF 25V	M
	C1118	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1119	NDC21HJ-681X	CH C CAP.	680pF 50V	J
	C1120	QETN1HM-225Z	E CAP.	2.2µF 50V	M
	C1123	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1124	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1161	QETN1HM-106Z	E CAP.	10µF 50V	M
	C1162	NCB21HK-333X	CH C CAP.	0.033µF 50V	K
	C1163	NDC21HJ-470X	CH C CAP.	47pF 50V	J
	C1164	NDC21HJ-470X	CH C CAP.	47pF 50V	J
	C1165	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1166	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1202	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1207	NCB21HK-104X	CH C CAP.	0.1µF 50V	K
	C1208	QETN1HM-475Z	E CAP.	4.7µF 50V	M
	C1209	QETN1CM-227Z	E CAP.	220µF 16V	M
	C1210	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1211	NDC21HJ-681X	CH C CAP.	680pF 50V	J
	C1212	NCB21HK-104X	CH C CAP.	0.1µF 50V	K
	C1213	QETN1HM-105Z	E CAP.	1µF 50V	M
	C1214	NCB21HK-104X	CH C CAP.	0.1µF 50V	K
	C1215	QETN1HM-106Z	E CAP.	10µF 50V	M
	C1251	QETN1HM-106Z	E CAP.	10µF 50V	M
	C1252	QETN1HM-106Z	E CAP.	10µF 50V	M
	C1254	QETN1CM-477Z	E CAP.	470µF 16V	M
	C1256	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1258	QETN1CM-227Z	E CAP.	220µF 16V	M
	C1291	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1292	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1294	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1296	QETN1CM-107Z	E CAP.	100µF 16V	M
	C1301	NDC21HJ-150X	CH C CAP.	15pF 50V	J
	C1302	NDC21HJ-150X	CH C CAP.	15pF 50V	J
	C1303	NDC21HJ-120X	CH C CAP.	12pF 50V	J
	C1304	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1305	NDC21HJ-120X	CH C CAP.	12pF 50V	J
	C1306	QETN1EM-476Z	E CAP.	47µF 25V	M
	C1307	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1308	NCB21HK-104X	CH C CAP.	0.1µF 50V	K
	C1309	NCB21HK-104X	CH C CAP.	0.1µF 50V	K
	C1311	QETN1HM-225Z	E CAP.	2.2µF 50V	M
	C1312	NCB21HK-103X	CH C CAP.	0.01µF 50V	K
	C1313	QETN1HM-475Z	E CAP.	4.7µF 50V	M

⚠	Symbol No.	Part No.	Part Name	Description		Local
	CAPACITOR					
	C1342	QETN1HM-335Z	E CAP.	3.3µF	50V	M
	C1354	NDC21HJ-271X	CH C CAP.	270pF	50V	J
	C1355	NDC21HJ-271X	CH C CAP.	270pF	50V	J
	C1356	NDC21HJ-331X	CH C CAP.	330pF	50V	J
	C1357	QETN1CM-107Z	E CAP.	100µF	16V	M
	C1382	QCZ0121-102	C CAP.	1000pF	3kV	Z
	C1401	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1402	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1403	QEM61EK-225Z	E CAP.	2.2µF	25V	K
	C1405	QFV71HJ-104Z	TF CAP.	0.1µF	50V	J
	C1406	QFLC1HJ-472Z	M CAP.	4700pF	50V	J
	C1410	QETN1VM-107Z	E CAP.	100µF	35V	M
	C1411	QETN1VM-477Z	E CAP.	470µF	35V	M
	C1412	QFLB2AK-154	M CAP.	0.47µF	100V	K
	C1413	QETN1EM-108Z	E CAP.	1000µF	25V	M
	C1414	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1415	QFLC1HJ-152Z	M CAP.	1500pF	50V	J
	C1416	NDC21HJ-681X	CH C CAP.	680pF	50V	J
	C1501	QETN1CM-107Z	E CAP.	100µF	16V	M
	C1503	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1505	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1506	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1507	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1511	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1521	QCB32HK-151Z	C CAP.	150pF	500V	K
	C1522	QCB32HK-331Z	C CAP.	330pF	500V	K
	C1523	QETN2CM-105Z	E. CAP	1µF	160V	M
	C1524	QFZ0198-782	MPP CAP.	7800pF	1.5kVH	±3%
	C1525	QFZ0119-434	MPP CAP.	0.43µF	200V	±3%
	C1526	QEZ0203-476	E CAP.	47µF	160V	M
	C1541	QETN2EM-106Z	E CAP.	10µF	250V	M
	C1543	QETN1VM-477Z	E CAP.	470µF	35V	M
	C1546	QETN1CM-227Z	E CAP.	220µF	16V	M
	C1547	QETN1CM-227Z	E CAP.	220µF	16V	M
	C1561	QETN1VM-107Z	E CAP.	100µF	35V	M
	C1581	QFLC1HJ-473Z	M CAP.	0.047µF	50V	J
	C1583	QFV71HJ-104Z	TF CAP.	0.1µF	50V	J
	C1584	QFLC2AJ-103Z	M CAP.	0.01µF	100V	J
	C1601	QENC1HM-105Z	BP E CAP.	1µF	50V	M
	C1603	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1604	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1605	QETN1EM-477Z	E CAP.	470µF	25V	M
	C1606	NCB21EK-224X	CH C CAP.	0.22µF	25V	K
	C1607	QETM1EM-228	E CAP.	2200µF	25V	M
	C1608	QETN1EM-476Z	E CAP.	47µF	25V	M
	C1609	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1610	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1611	NCB21EK-224X	CH C CAP.	0.22µF	25V	K
	C1612	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1613	QETN1EM-107Z	E CAP.	100µF	25V	M
	C1614	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1615	QETN1HM-226Z	E CAP.	22µF	50V	M
	C1651	NCB21HK-332X	CH C CAP.	3300pF	50V	K
	C1652	QENC1CM-106Z	BP E CAP.	10µF	16V	M
	C1653	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1654	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1655	QETN1CM-107Z	E CAP.	100µF	16V	M
	C1656	NCB21HK-332X	CH C CAP.	3300pF	50V	K
	C1657	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1701	NRSA02J-0ROX	CH MG R	0.0Ω	1/10W	J
	C1703	NRSA02J-0ROX	CH MG R	0.0Ω	1/10W	J
	C1704	NCB21HK-102X	CH C CAP.	1000pF	50V	K
	C1706	QETN1AM-227Z	E CAP.	220µF	10V	M
	C1707	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1708	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1709	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1711	NDC21HJ-151X	CH C CAP.	150pF	50V	J
	C1712	NCB21HK-104X	CH C CAP.	0.1µF	50V	K
	C1713	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1714	NDC21HJ-221X	CH C CAP.	220pF	50V	J
	C1715	NCB21HK-102X	CH C CAP.	1000pF	50V	K
	C1716	QENC1HM-474Z	BP E CAP.	0.47µF	50V	M
	C1717	NDC21HJ-180X	CH C CAP.	18pF	50V	J
	C1718	NDC21HJ-220X	CH C CAP.	22pF	50V	J
	C1719	QETN1CM-107Z	E CAP.	100µF	16V	M

⚠	Symbol No.	Part No.	Part Name	Description		Local
	CAPACITOR					
	C1720	NCB21HK-104X	CH C CAP.	0.1µF	50V	K
	C1723	NDC21HJ-151X	CH C CAP.	150pF	50V	J
	C1724	QETN1HM-105Z	E CAP.	1µF	50V	M
	C1725	NDC21HJ-151X	CH C CAP.	150pF	50V	J
	C1727	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1733	QETN1EM-476Z	E CAP.	47µF	25V	M
	C1734	NCB21HK-104X	CH C CAP.	0.1µF	50V	K
	C1735	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1736	QETN1CM-107Z	E CAP.	100µF	16V	M
	C1738	QETN1EM-476Z	E CAP.	47µF	25V	M
	C1742	QETN1HM-225Z	E CAP.	2.2µF	50V	M
	C1765	NDC21HJ-101X	CH C CAP.	100pF	50V	J
	C1771	QETN1EM-476Z	E CAP.	47µF	25V	M
	C1772	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1805	QETN1CM-227Z	E CAP.	220µF	16V	M
	C1806	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1811	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1812	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
	C1813	NCB21HK-103X	CH C CAP.	0.01µF	50V	K
⚠	C1901	QFZ9040-104	MF CAP.	0.1µF	AC275V	M
⚠	C1902	QFZ9040-104	MF CAP.	0.1µF	AC275V	M
	C1903	QCZ9086-472	C CAP.	4700pF	AC400V	P
	C1904	QCZ9086-472	C CAP.	4700pF	AC400V	P
	C1905	QCZ9086-472	C CAP.	4700pF	AC400V	P
	C1906	QEZ0199-127	E CAP.	120µF	400V	M
	C1921	QCZ0325-102	C CAP.	1000pF	2kV	K
	C1922	QCS31HJ-471Z	C CAP.	470pF	50V	J
	C1924	QETN1VM-107Z	E CAP.	100µF	35V	M
	C1925	QFLC1HJ-102Z	M CAP.	1000pF	50V	J
	C1926	QFLC1HJ-182Z	M CAP.	1800pF	50V	J
	C1928	QFV71HJ-104Z	TF CAP.	0.1µF	50V	J
	C1931	QCZ0122-391	C CAP.	390pF	2kV	K
	C1941	QCZ0122-471	C CAP.	470pF	2kV	K
	C1942	QEZ0203-107	E CAP.	100µF	160V	M
	C1943	QCB32HK-471Z	C CAP.	470pF	500V	K
	C1944	QETN1EM-108Z	E CAP.	1000µF	25V	M
	C1945	QETN1EM-227Z	E CAP.	220µF	25V	M
	C1946	QETN1EM-107Z	E CAP.	100µF	25V	M
	C1947	QETN1HM-106Z	E CAP.	10µF	50V	M
	C1952	QETM1EM-228	E CAP.	2200µF	25V	M
	C1953	QCZ0122-471	C CAP.	470pF	2kV	K
	C1957	NDC21HJ-471X	CH C CAP.	470pF	50V	J
	C1961	QETN1CM-107Z	E CAP.	100µF	16V	M
	C1962	QETN1EM-476Z	E CAP.	47µF	25V	M
⚠	C1981	QCZ9079-471	C CAP.	470pF	AC250V	K
⚠	C1982	QCZ9079-102	C CAP.	1000pF	AC250V	K
⚠	C1983	QCZ9079-471	C CAP.	470pF	AC250V	K
	C1984	QETN1VM-337Z	E CAP.	330µF	35V	M

⚠	Symbol No.	Part No.	Part Name	Description	Local
	TRANSFORMER				
	T1111	CELT001-209J3	CW TRANSF.		
	T1521	CE42034-001	HOR DRIVE TRANSF.		
⚠	T1921	CETS109-001JK	SW TRANSF.		

	Symbol No.	Part No.	Part Name	Description	Local
	COIL				
	L1001	QQL03BJ-150Z	COIL	15µH	J
	L1003	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1101	QQLZ014-R22	COIL	0.22µH	
	L1131	QQL03BJ-150Z	COIL	15µH	J
	L1161	QQL03BJ-220Z	COIL	22µH	J
	L1205	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1301	QQL03BJ-390Z	COIL	39µH	J
	L1381	QQL03BJ-390Z	COIL	39µH	J
	L1501	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1701	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1702	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1708	QQL03BJ-560Z	COIL	56µH	J
	L1771	QQL03BJ-4R7Z	COIL	4.7µH	J
	L1941	QQL26AK-820Z	CHOKE COIL	82µH	K
	L1942	QQL26AK-820Z	CHOKE COIL	82µH	K

⚠	Symbol No.	Part No.	Part Name	Description	Local

DIODE

	D1001	MTZJ33A-T2	ZENER DIODE	
	D1201	1SS133-T2	SI DIODE	
	D1202	MTZJ7.5B-T2	ZENER DIODE	
	D1253	MTZJ5.6A-T2	ZENER DIODE	
	D1254	MTZJ5.6A-T2	ZENER DIODE	
	D1255	MTZJ5.6A-T2	ZENER DIODE	
	D1256	MTZJ5.6A-T2	ZENER DIODE	
	D1341	1SS133-T2	SI DIODE	
	D1401	1N4003-T2	SI DIODE	
	D1402	MTZJ75-T2	ZENER DIODE	
	D1510	1SS133-T2	SI DIODE	
	D1541	RH1S-T3	SI DIODE	
	D1542	RGP10J-5025-T3	SI DIODE	
	D1543	RGP10J-5025-T3	SI DIODE	
	D1544	RH1S-T3	SI DIODE	
	D1561	1SS81-T2	SI DIODE	
	D1562	MTZJ7.5S-T2	ZENER DIODE	
	D1581	RGP10J-5025-T3	SI DIODE	
	D1582	MTZJ9.1B-T2	ZENER DIODE	
	D1601	1SS133-T2	SI DIODE	
	D1602	1SS133-T2	SI DIODE	
	D1604	MTZJ7.5B-T2	ZENER DIODE	
	D1605	1SS133-T2	SI DIODE	
	D1651	MTZJ5.6A-T2	ZENER DIODE	
	D1652	MTZJ5.6A-T2	ZENER DIODE	
	D1657	MTZJ9.1C-T2	ZENER DIODE	
	D1701	1SS133-T2	SI DIODE	
	D1702	1SS133-T2	SI DIODE	
	D1703	1SS133-T2	SI DIODE	
	D1704	1SS133-T2	SI DIODE	
	D1705	MTZJ5.6A-T2	ZENER DIODE	
	D1706	SLR-342VR-T16	LED (RED)	
	D1707	SLR-342DU-T16	LED (ORG)	
	D1771	MTZJ6.2B-T2	ZENER DIODE	
	D1772	MTZJ6.2B-T2	ZENER DIODE	
	D1801	MTZJ15B-T2	ZENER DIODE	
	D1802	MTZJ15B-T2	ZENER DIODE	
	D1803	MTZJ15B-T2	ZENER DIODE	
	D1805	MTZJ15B-T2	ZENER DIODE	
	D1901	D2SBA60	BRIDGE DIODE	
	D1903	RGP10J-5025-T3	SI DIODE	
	D1905	MTZJ6.8A-T2	ZENER DIODE	
	D1921	RGP10J-5025-T3	SI DIODE	
	D1922	RGP10J-5025-T3	SI DIODE	
	D1923	MTZJ15A-T2	ZENER DIODE	
	D1924	1SS133-T2	SI DIODE	
	D1927	1SS133-T2	SI DIODE	
	D1928	1SS133-T2	SI DIODE	
	D1929	MTZJ15A-T2	ZENER DIODE	
	D1941	RU3AM-LFC4	SI DIODE	
	D1942	RGP10J-5025-T3	SI DIODE	
	D1943	1SS133-T2	SI DIODE	
	D1945	MTZJ5.6B-T2	ZENER DIODE	
	D1948	RGP10J-5025-T3	SI DIODE	
	D1961	MTZJ7.5S-T2	ZENER DIODE	
	D1962	1SS133-T2	SI DIODE	

TRANSISTOR

	Q1101	2SC5083/L-P/-T	SI TRANSISTOR	
	Q1111	DTC124EKA-X	DIGI TRANSISTOR	
	Q1131	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1161	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1201	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1202	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1251	2SC1740S/QR/-T	SI TRANSISTOR	
	Q1301	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1302	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1341	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1342	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1351	2SC4544-LB	POWER TRANSISTOR	
	Q1352	2SC4544-LB	POWER TRANSISTOR	
	Q1353	2SC4544-LB	POWER TRANSISTOR	
	Q1401	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1511	2SC2785/JH/-T	SI TRANSISTOR	

⚠	Symbol No.	Part No.	Part Name	Description	Local

TRANSISTOR

	Q1521	BSN304-T	TRANSISTOR	
	Q1522	2SD1878-YD	PW TRANSISTOR	H.OUT
	Q1602	DTC323TK-X	DIGI TRANSISTOR	
	Q1603	2SA1037AK/QR/-X	SI TRANSISTOR	
	Q1606	2SA1037AK/QR/-X	SI TRANSISTOR	
	Q1607	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1608	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1651	DTC363TK-X	DIGI TRANSISTOR	
	Q1701	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1702	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1703	DTC124EKA-X	DIGI TRANSISTOR	
	Q1705	DTC124EKA-X	DIGI TRANSISTOR	
	Q1761	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1921	2SA933AS/QR/-T	SI TRANSISTOR	
	Q1941	2SA966/OY/-T	SI TRANSISTOR	
	Q1942	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1943	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1944	2SC2412K/QR/-X	CHIP TRANSISTOR	
	Q1961	2SA949/Y/Z1-T	SI TRANSISTOR	

IC

	IC1001	AN78L05-T	IC (5V REG)	
	IC1101	M52342SP	IC	
	IC1201	TB1230AN	IC	
	IC1251	BA7612N	IC	
	IC1291	AN78N05	IC (5V REG)	
	IC1292	AN78L09-T	IC (9V REG)	
	IC1293	KIA78L05BP-T	IC	
	IC1401	LA7840	IC	
	IC1541	AN7809F	IC (9V REG)	
	IC1601	LA4285	IC	
	IC1602	SI-5001X-X	IC	
	IC1651	LA7016	IC	
	IC1701	M37272MA-054SP	IC (MICROCOMPUTER)	
	IC1702	L78LR05E-MA	IC (5V REG/RESET)	
	IC1703	GP1U281Q	IC	
	IC1704	AT24C02-21F3PX	IC (MEMORY)	(Service)
	IC1921	STR-F6654	SW REG IC	
	IC1941	SE135N	IC	

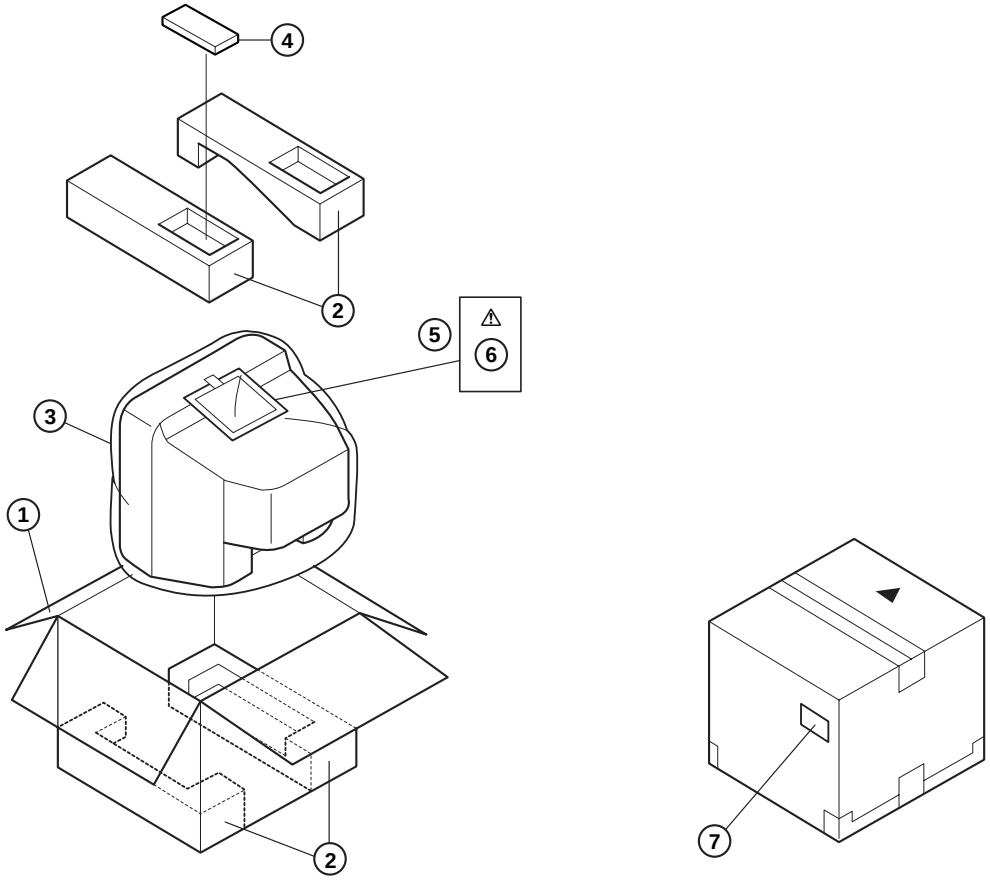
OTHERS

		LC30114-001C-H	LED HOLDER			
	CF1001	FTP47.25MF	CERAMIC TRAP			
	CF1131	QAX0339-001	CERAMIC TRAP			
	CF1161	SFSH4.5MCB	CERAMIC FILTER			
	CN100X	CH41169-R03Y	EH POST HEADER			
	CN10B1	CH41169-R03Y	EH POST HEADER			
⚠	CP1941	ICP-N75-Y	IC PROTECTOR			
⚠	CP1942	ICP-N50-Y	IC PROTECTOR			
	EF1301	CE42142-222Z	EMI FILTER			
⚠	F1901	QMF51E2-3R15J4	FUSE	3.15A		
	FC1901	CEMG002-001Z	FUSE CLIP			
	FC1902	CEMG002-001Z	FUSE CLIP			
⚠	FR1542	QRZ9023-1R0	FUSIBLE RESISTOR			
⚠	FR1561	QRZ9017-4R7	F R	4.7Ω	1/4W	J
⚠	FR1585	QRZ9021-1R5	F R	1.5Ω	1W	J
	FR1586	QRE121J-332Y	C R	3.3kΩ	1/2W	J
⚠	FR1602	QRZ9023-3R3	FUSIBLE RESISTOR			
⚠	FR1720	QRZ9017-270	FUSIBLE RESISTOR			
	J1001	QNN0348-002	PIN JACK			
	J1002	QNN0348-002	PIN JACK			
	J1003	CEMN065-001	PIN JACK			
	J1004	CEMN065-002	PIN JACK			
	J1006	QMS3007-C01	3.5 JACK			
	K1401	QQR0621-001Z	BEADS CORE			
	K1921	QQR0621-001Z	BEADS CORE			
	K1923	QQR0582-001Z	BEADS CORE			
	K1941	QQR0621-001Z	BEADS CORE			
	K1942	QQR0582-001Z	BEADS CORE			
	K1943	QQR0621-001Z	BEADS CORE			
⚠	LF1901	QQR0673-002	LINE FILTER			
⚠	PC1921	TLP621(GR)-LF2	IC (PHOTO COUPLER)			

⚠	Symbol No.	Part No.	Part Name	Description	Local
	OTHERS				
	S1701	QSW0619-003Z	PUSH SWITCH	VOL+	
	S1702	QSW0619-003Z	PUSH SWITCH	VOL-	
	S1703	QSW0619-003Z	PUSH SWITCH	CH+	
	S1704	QSW0619-003Z	PUSH SWITCH	CH-	
	S1705	QSW0619-003Z	PUSH SWITCH	MENU	
⚠	S1901	QSP4K21-C01	PUSH SWITCH	POWER	
	SF1101	QAX0324-002	SAW FILTER		
⚠	SK1351	CE42535-001J1	CRT SOCKET		
	TH1901	QAD0101-9R0	P THERMISTOR		
	TU1001	QAU0190-001	TUNER		
⚠	VA1901	ERZV10V621CS	VARISTOR		
	X1301	QAX0305-001Z	X TAL		
	X1701	QAX0468-001Z	X TAL		

⚠	Symbol No.	Part No.	Part Name	Description	Local

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
	1	GG10057-006A	PACKING CASE		
	2	LC10516-005A	CUSHION ASSY	4 pcs. in 1 set	
	3	CP30967-003-H	POLY BAG		
	4	RM-C372-1H	REMOCON UNIT		
	5	CP30966-001-H	POLY BAG		
⚠	6	LCT0808-001A-H	INST BOOK		
	7	CP30902-040(R)	POS/SERIAL LABEL		

REMOTE CONTROL UNIT PARTS LIST (RM-C372-1H)

⚠	Ref.No.	Part No.	Part Name	Description	Local
		3139 224 20073	BATTERY COVER		